PROJECT REPORT
ON
FITNESS HUB

Submitted By

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MGP19MCA-I028

To

the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the degree of

Integrated Master of Computer Applications

Under the Guidance of

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BONAFIDE CERTIFICATE

Certified that the report entitled **FITNESS HUB** by **Mr. Rohan Jacob**, **MGP19MCA-I028** to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree of Integrated Master of Computer Applications is a bonafide record of the project work carried out by him under our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

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TutorComp

28th March 2024

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Rohan Jacob** has undergone an Internship Programme in the topic Fitness Hub Website with our organisation from **05/01/2024 to 28/03/2024**. During this tenure He has studied Next.js, Node.js and WebRTC technology stack and implemented the same on the website. We found his performance to be good. His conduct has been good during the tenure.

We wish him good luck in all his future endeavours.

Yours Truly,

For **TutorComp Infotech (I) Pvt Ltd**

Shery S Kurian

C.E.O

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ROHAN JACOB

ABSTRACT

The Fitness Hub is a groundbreaking platform that revolutionizes the fitness experience by integrating personalized guidance and community support. Traditional fitness programs often overlook the importance of individualized approaches and the power of a supportive community. The Fitness Hub addresses these gaps by offering a comprehensive range of services designed to cater to each member's unique needs and goals.

At the core of the Fitness Hub is its personalized dietitian service, where members receive tailored nutritional guidance. This service ensures that dietary choices align with individual goals and health requirements, setting the foundation for a holistic approach to health and wellness. By addressing nutrition, the Hub acknowledges that fitness journeys are not just about exercise but also about nourishing the body for optimal performance and well-being.

In addition to personalized nutrition guidance, the Fitness Hub facilitates one-on-one video conferences with certified gym trainers. These sessions allow members to engage in personalized workout sessions, receive form corrections, and gain valuable fitness insights. The real-time interaction with experienced trainers creates a dynamic and supportive environment, empowering members to achieve their fitness goals efficiently and effectively.

The Hub also fosters a sense of community through interactive group sessions with fellow members. These virtual group workouts not only promote camaraderie but also provide motivation and accountability as members embark on their fitness journeys together. Furthermore, the platform hosts scheduled video conferences that bring the entire fitness community and trainers together for virtual workshops. These workshops cover the latest fitness trends, share experiences, and engage in informative Q&A sessions with professionals, enriching the overall fitness experience.

The Fitness Hub is more than just a website; it is a comprehensive wellness platform that combines personalized guidance with a supportive community. By making fitness

accessible, enjoyable, and tailored to the unique needs of each individual, the Hub aims to empower people on the path to a healthier and happier lifestyle. Join us in redefining fitness and embracing holistic wellness at the Fitness Hub.

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1.1 PROJECT OVERVIEW

The Fitness Hub is an innovative platform designed to transform the fitness experience by providing personalized guidance and fostering a connected community. Through a combination of personalized dietitian services, one-on-one video conferences with certified gym trainers, interactive group sessions, and virtual workshops, the Hub offers a comprehensive approach to health and wellness. Members benefit from tailored nutritional guidance, personalized workout sessions, camaraderie with fellow members, and access to the latest fitness trends and insights, all aimed at empowering individuals on their journey to a healthier and happier lifestyle. With a focus on individualized support and community engagement, the Fitness Hub redefines fitness by making it accessible, enjoyable, and effective for everyone. Through direct interactions with experienced professionals, members can optimize their nutrition, refine their workouts, and stay informed about the latest fitness trends. This holistic approach not only empowers individuals to achieve their fitness goals efficiently but also fosters a sense of belonging and accountability within the supportive community of like-minded individuals.

Key Objective:

- **Personalized Guidance**: To provide members with tailored nutritional guidance and personalized workout sessions through one-on-one video conferences with certified gym trainers. This ensures that each individual's dietary choices and fitness routines align with their specific goals and health requirements.
- **Community Engagement**: To foster a supportive and connected community environment through interactive group sessions, virtual workshops, and scheduled video conferences. This encourages members to engage with each other, share experiences, and stay motivated on their fitness journeys.
- **Accessibility and Convenience**: To make fitness resources and professional guidance easily accessible through an online platform, allowing members to access services from anywhere at any time. This ensures convenience and flexibility in pursuing holistic wellness.
- **Continuous Improvement**: To gather feedback from members and industry trends to continuously improve and enhance the services and offerings of the

Holistic Fitness Hub. This ensures that the platform remains relevant, effective, and valuable to its members in their pursuit of a healthier lifestyle.

- **Community Impact Initiatives**: To initiate community impact initiatives that promote social responsibility, sustainability practices, and positive contributions to the broader wellness community. This objective reflects the Hub's commitment to not only individual wellness but also collective well-being and societal impact.

The scope of the Fitness Hub encompasses a comprehensive range of services and features that are designed to provide a holistic wellness experience for its members. At the core of its offerings are personalized services aimed at addressing individual health and fitness needs. This includes personalized dietitian services, where members receive tailored nutritional guidance based on their goals, preferences, and health requirements. Additionally, one-on-one video conferences with certified gym trainers allow for personalized workout sessions, form corrections, and fitness insights, ensuring that members receive expert guidance to optimize their fitness routines.

In terms of community engagement, the Fitness Hub offers interactive group sessions that bring members together for virtual workouts, fostering camaraderie, motivation, and accountability. These sessions create a supportive environment where members can connect with like-minded individuals, share experiences, and celebrate progress together. Furthermore, the platform hosts virtual workshops and scheduled video conferences, providing educational opportunities for members to stay informed about the latest fitness trends, wellness practices, and expert insights. Q&A sessions with professionals also allow for direct engagement and knowledge sharing within the community.

The virtual platform of the Fitness Hub serves as a central hub for accessing a wide range of fitness resources and tools. This includes educational content on nutrition, exercise, and wellness, as well as progress tracking tools to monitor fitness goals and track improvements over time. Community forums and discussion boards enable members to interact, ask questions, and seek support from peers and experts. Moreover, the platform is designed for convenience and accessibility, allowing members to access services and resources from any device, anywhere, and at any time.

Continuous improvement is a key aspect of the Fitness Hub's scope, with ongoing efforts to enhance services, features, and user experience based on member feedback, data

analytics, and industry trends. This includes integrating additional holistic wellness components such as mindfulness practices, stress management techniques, sleep optimization strategies, and mental health resources to address the interconnected nature of overall well-being. Partnerships with wellness experts, fitness professionals, and industry influencers further enrich the platform's offerings, providing members with access to specialized knowledge, exclusive content, and unique opportunities for growth and development.

In summary, the Fitness Hub's scope encompasses personalized guidance, community engagement, educational opportunities, convenience, continuous improvement, holistic wellness integration, partnerships, and a commitment to promoting collective well-being through a comprehensive and transformative wellness ecosystem.

1.2 About Organization

Saintgits College of Engineering is a self-financing technical institution located at Kottayam district of Kerala. The college was established in 2002. Saintgits is approved by All India Council for Technical Education and affiliated to APJ Abdul Kalam Technological University, Kerala. The institute is accredited by NBA in 2016 for 3 years for 5 UG programs and in 2017 for 3 years for Master of Computer Application program. The college was founded by a group of well-known academicians. They are pioneering educators, having unmatched experience in the field of education with a belief that the continuous search for knowledge is the sole path to success. The primary focus of the institution is to expose the young minds to the world of technology, instilling in them confidence and fortitude to face new challenges that enable them to excel in their chosen fields. The college inculcates the development of all facets of the mind culminating in an intellectual and balanced personality.

A team of dedicated and caring faculty strives to widen the student’s horizon of learning thereby achieving excellent results for every student. With a scientifically planned methodology combined with a team of handpicked faculty the best in the teaching profession and the state-of-the-art infrastructure, the quality of the engineering education at Saintgits is unparalleled in the region. The institute has turned into a benchmark for others to emulate. With 100% seats filled from the year of inception itself and feel confident that Saintgits can serve even better with every passing year. Saintgits College of Engineering, right from inception, has been maintaining high levels of standards in academic and extra-curricular

realms of activities. Saintgits offer a B Tech Degree course in 9 engineering disciplines, and Master's Degree courses in Engineering, Computer Applications and Business Administration.

In the short span of a decade of its existence and among the six batches of students that have graduated, the college bagged several universities ranks and has a remarkably high percentage of pass. The students of the first batch of MCA bagged the first two ranks in the University. The college is also the venue of national and state level seminars and symposiums and has emerged as the hub of technical education in Kerala.

CHAPTER 2: LITERATURE SURVEY

A comprehensive literature survey for the Fitness Hub project involves diving deep into existing research, studies, and publications across several key areas related to holistic wellness, personalized fitness guidance, community engagement in fitness, online wellness platforms, and related topics.

2.1 Initial Investigation

The overarching mission and vision of the Fitness Hub, emphasizing its commitment to promoting holistic wellness, personalized guidance, and community support. Identify specific objectives such as providing tailored nutrition guidance, offering personalized workout sessions, fostering community engagement, and leveraging technology for an enhanced user experience.

Research current trends in the fitness and wellness industry, including the rising demand for personalized fitness services, the popularity of online wellness platforms, and the growing interest in holistic health approaches. Explore consumer preferences and behaviors related to fitness and wellness, including preferences for virtual workouts, interest in personalized guidance, and motivations for joining fitness communities.

2.2 Existing System

The existing system in the realm of fitness and wellness comprises a multifaceted landscape that includes traditional fitness centers and gyms, nutrition services, online fitness platforms, community engagement tools, educational resources, technology solutions, telehealth services, and regulatory compliance considerations. Within traditional fitness centers and gyms, individuals access in-person workout sessions, group fitness classes, and services such as personalized training sessions with gym trainers and nutrition counseling from registered dietitians or nutrition experts. These centers often offer a range of facilities and equipment to support diverse fitness goals.

In parallel, the digital realm of fitness and wellness has seen significant growth with the emergence of online fitness platforms and wellness apps. These platforms provide virtual workouts, on-demand fitness classes, workout tracking capabilities, and progress monitoring

features. They leverage video-based workouts, live streaming sessions, exercise libraries, and social sharing functionalities to engage users and provide a more flexible and accessible fitness experience. Additionally, social media platforms, online forums, and virtual communities play a crucial role in fostering community engagement, allowing individuals to connect, share experiences, and seek support from like-minded peers.

Educational resources in the form of blogs, articles, videos, and podcasts offer valuable insights into nutrition, exercise science, fitness tips, wellness strategies, and healthy lifestyle habits. These resources are often curated by experts and provide evidence-based information, tutorials, recipes, and motivational content to educate and inspire individuals on their wellness journey. Technology solutions such as wearable fitness devices, activity trackers, and health monitoring tools further enhance the fitness experience by enabling users to track physical activity, monitor health metrics, and receive personalized insights and recommendations.

Moreover, telehealth and telefitness services have gained prominence, offering remote consultations, virtual appointments, and video conferencing with healthcare providers, fitness coaches, and wellness experts. These services encompass telefitness assessments, personalized workout plans, virtual coaching sessions, and wellness consultations delivered through digital channels. Throughout the ecosystem, adherence to regulatory standards, privacy regulations, data security protocols, and ethical considerations remains paramount to ensure the confidentiality, security, and trustworthiness of health information and user data.

Understanding the intricacies of the existing system provides valuable insights into current practices, technological capabilities, user preferences, and regulatory frameworks. It serves as a foundation for assessing opportunities for improvement, identifying integration points, and aligning the Holistic Fitness Hub project with industry standards and user expectations to deliver a comprehensive and impactful wellness experience.

2.3 Proposed System

The proposed system for the Holistic Fitness Hub project is designed to reimagine the fitness and wellness experience by integrating cutting-edge technology, personalized guidance, community engagement, and educational resources into a seamless and user-centric platform. At the core of the system is a focus on personalized fitness and nutrition guidance, where members can access tailored dietitian services for personalized nutritional guidance, meal

planning support, and dietary counseling. Additionally, one-on-one video conferences with certified gym trainers will be available to provide personalized workout plans, form corrections, fitness assessments, and progress tracking, ensuring that each member receives individualized support aligned with their goals and health needs.

Community engagement and support are key components of the proposed system, with features such as interactive group sessions, virtual workshops, and scheduled video conferences aimed at fostering a sense of community, encouraging peer support, and facilitating knowledge sharing among members. Social networking features, discussion forums, and community challenges will also be integrated to promote engagement, accountability, and motivation within the fitness community. Moreover, the platform will curate educational resources, articles, videos, and webinars on topics such as nutrition, exercise science, mindfulness practices, stress management, and holistic wellness strategies, empowering members with knowledge, skills, and tools for sustainable lifestyle changes.

From a technological standpoint, the proposed system will offer an intuitive and user-friendly online platform accessible via web browsers and mobile apps, providing seamless navigation, personalized recommendations, and interactive features. Integration with wearable fitness devices, activity trackers, and health monitoring tools will enable the collection of user data, tracking of fitness metrics, and delivery of personalized insights and feedback to members. Virtual fitness classes, on-demand workouts, and live streaming sessions led by experienced fitness instructors will cater to diverse fitness levels, interests, and preferences, while telehealth services will allow for virtual consultations with healthcare providers, nutritionists, mental health professionals, and wellness coaches to address individual health concerns and provide personalized advice.

Data analytics tools will be implemented to analyze member data, track trends, and generate personalized insights and recommendations related to fitness, nutrition, sleep patterns, stress levels, and overall well-being. Strong emphasis will be placed on regulatory compliance, data privacy, and security, with measures in place to ensure compliance with healthcare regulations, data privacy laws, industry standards, and ethical guidelines. This comprehensive approach aims to create a holistic wellness ecosystem that empowers individuals to optimize their health, connect with a supportive community, and achieve their wellness goals effectively and sustainably.

2.4 Feasibility Study

A detailed feasibility study for the Holistic Fitness Hub project involves a thorough analysis of various aspects to determine the project's practicality and potential success. Here's a detailed breakdown of each component:

1. **Economic Feasibility:**
    - Cost Analysis: Conduct a detailed cost-benefit analysis, including initial development costs, hardware/software expenses, licensing fees, marketing budgets, operational costs, and projected revenue streams.
    - Revenue Projections**:** Estimate potential revenue sources such as membership fees, subscription models, premium services, advertising revenue, partnerships, and sponsorships based on market research and industry benchmarks.
    - Return on Investment (ROI): Calculate the expected ROI over time, considering factors like customer acquisition costs, member retention rates, market growth potential, and profitability metrics.
2. **Technical Feasibility:**
    - System Architecture: Evaluate the scalability, performance, and reliability of the proposed system architecture, including servers, databases, APIs, and integration capabilities.
    - Technology Stack: Assess the feasibility of using specific technologies, frameworks, programming languages, and development tools based on compatibility, industry standards, and technical expertise.
    - Data Management: Determine the feasibility of managing user data, security protocols, data encryption, backup procedures, and compliance with data privacy regulations such as GDPR or HIPAA.
3. **Operational Feasibility:**
    - Resource Availability: Evaluate the availability of skilled personnel, developers, trainers, nutritionists, and customer support staff required for system implementation, content creation, and ongoing operations.
    - Training Needs: Assess the training requirements for staff and users on platform usage, virtual sessions, data management protocols, privacy policies, and customer service standards.

- Workflow Integration: Determine how the proposed system will integrate with existing workflows, operational processes, scheduling mechanisms, and communication channels within the organization or with external partners.

CHAPTER 3: SYSTEM ANALYSIS AND DESIGN

System analysis and design for the Holistic Fitness Hub project involves a structured approach to understanding requirements, defining system functionalities, designing the user interface, developing the system architecture, and planning for implementation. Here's an overview of the key steps and components in system analysis and design:

- **Requirements Gathering**: Conduct interviews, surveys, and workshops with stakeholders, fitness experts, nutritionists, and potential users to gather requirements.
- **System Modeling**: Create system models such as use case diagrams, activity diagrams, sequence diagrams, and class diagrams to visualize system interactions, processes, and data flows.
- **User Interface Design**: Design the user interface (UI) for the fitness hub platform, considering user experience (UX) principles, accessibility, navigation, aesthetics, and usability. Create wireframes, mockups, and prototypes to visualize UI elements, layouts, interactive features, and content presentation.
- **System Architecture**: Define the system architecture, including components, modules, layers, interfaces, and integration points. Select appropriate technologies, frameworks, databases, APIs, and development tools for building the platform and ensuring scalability, performance, and security.
- **Database Design**: Design the database schema, tables, indexes, relationships, and data storage mechanisms based on the data model and requirements. Optimize database performance, implement data validation rules, and ensure data integrity, security, and privacy.
- **Software Development**: Develop software components, modules, and functionalities based on the defined requirements, system models, UI design, and architecture. Follow software development best practices, coding standards, version control, and testing methodologies to ensure quality, reliability, and maintainability.
- **Deployment and Implementation**: Plan for system deployment, installation, configuration, and migration to production environments.
- **Maintenance and Support**: Establish maintenance processes, software updates, patches, bug fixes, and enhancements to ensure ongoing system stability, security, and functionality.

3.1 Software Requirement Specification

The Software Requirements Specification (SRS) document for the Fitness Hub project outlines the detailed requirements and specifications of the software system.

3.1.1 Hardware Requirement:

Processor: InRAM: 8.00 GB (7.83 GB usable)

Hard disk: 512 GB

Input Device: Standard Mouse and Keyboard

Output Device: High Resolution Monitotel(R) Core(TM) i5-10500H CPU @ 2.50GHz 2.50 GHz

3.2 Technologies Used

The technologies used in developing the Fitness Hub platform encompass a range of software, programming languages, frameworks, and tools that contribute to its functionality, performance, security, and user experience. Here's an overview of the key technologies utilized in building the fitness hub:

- **ReactJs**:

  React.js is a powerful JavaScript library widely used for building interactive and dynamic user interfaces (UIs) in web applications. Its component-based architecture allows developers to create reusable UI components, which can be composed together to form complex UIs. This modularity not only makes the codebase more organized and maintainable but also improves development efficiency by enabling code reusability across different parts of the application.

  One of the key advantages of React.js is its use of a virtual DOM (Document Object Model), which helps optimize performance by reducing unnecessary DOM updates. Instead of directly manipulating the DOM, React compares changes in the virtual DOM with the actual DOM and updates only the necessary components, resulting in faster rendering and improved overall performance. Additionally, React's JSX syntax allows developers to write HTML-like code directly within JavaScript, making the code more readable and expressive, and facilitating easier integration of UI elements with dynamic data and logic.

  Overall, React.js provides a robust foundation for building modern, responsive, and scalable web applications. Its declarative approach to UI development, efficient

rendering with the virtual DOM, component reusability, and rich ecosystem of libraries and tools make it a preferred choice for developers looking to create engaging and interactive user experiences on the web.

- **NodeJs:**

Node.js is a runtime environment that allows developers to run JavaScript on the server side, outside the browser environment. It is built on the V8 JavaScript engine, which powers Google Chrome, and provides a lightweight and efficient platform for building scalable and high-performance web applications. One of the key features of Node.js is its non-blocking, event-driven architecture, which enables asynchronous I/O operations. This means that Node.js can handle multiple concurrent operations without blocking the execution thread, making it ideal for handling real-time applications, streaming data, and handling large volumes of requests.

Another advantage of Node.js is its package management system, npm (Node Package Manager), which hosts a vast ecosystem of open-source libraries and modules. Developers can easily integrate third-party modules into their Node.js applications, speeding up development and enhancing functionality. Additionally, Node.js supports modern JavaScript features, such as ES6 and beyond, allowing developers to write cleaner and more maintainable code. Overall, Node.js is widely used for building web servers, APIs, microservices, and full-stack applications, providing a versatile and efficient platform for server-side JavaScript development.

- **MySQL:**

MySQL is an open-source relational database management system (RDBMS) that is widely used for storing, managing, and retrieving structured data. It is known for its reliability, scalability, performance, and ease of use, making it a popular choice for web applications, business solutions, and data-driven platforms. One of the key features of MySQL is its support for SQL (Structured Query Language), which allows developers to execute queries for data manipulation, retrieval, and management.

MySQL offers various storage engines, each with its own set of features and capabilities. The default storage engine is InnoDB, which provides support for transactions, referential integrity, and concurrency control. Other storage engines like

MyISAM, MEMORY, and NDB Cluster offer specific functionalities such as full-text search, in-memory storage, and distributed computing.

Additionally, MySQL provides robust security features such as user authentication, access control, encryption, and auditing mechanisms to ensure data protection and compliance with security standards. It also supports replication, clustering, and backup solutions for high availability and data redundancy. Overall, MySQL is a reliable and efficient choice for managing relational databases in a wide range of applications and industries.

- **WebRTC:**

WebRTC, which stands for Web Real-Time Communication, is an open-source project that enables real-time communication capabilities directly in web browsers without the need for additional plugins or software installations. It provides APIs (Application Programming Interfaces) and protocols for establishing peer-to-peer audio, video, and data communication channels between web browsers, allowing for seamless and interactive communication experiences.

One of the key features of WebRTC is its support for secure and encrypted communication, ensuring privacy and confidentiality during data transmission. It utilizes encryption standards such as DTLS (Datagram Transport Layer Security) for data encryption and SRTP (Secure Real-Time Transport Protocol) for media stream encryption, providing a secure communication environment.

WebRTC supports various communication scenarios, including one-on-one video calls, group video conferences, voice calls, screen sharing, file transfer, and real-time data exchange. It leverages the ICE (Interactive Connectivity Establishment) framework for establishing peer-to-peer connections, traversing NATs (Network Address Translators) and firewalls to enable communication between devices on different networks.

Furthermore, WebRTC is supported by major web browsers such as Google Chrome, Mozilla Firefox, Microsoft Edge, and Opera, making it widely accessible across different platforms and devices. Its versatility, ease of integration, and robust security features have made it a preferred technology for building real-time

communication applications, online collaboration tools, video conferencing platforms, and interactive web applications that require live audio and video capabilities.

- **Edamam API:**

The Edamam API is a valuable resource for developers looking to integrate nutrition and recipe data into their applications. With this API, developers can access a vast database of food-related information, including detailed nutritional analysis, recipe search functionality, and a comprehensive food database. One of the key features of the Edamam API is its ability to provide accurate nutrition data for various foods, ingredients, and recipes, allowing developers to offer personalized dietary guidance and meal planning tools to users.

Additionally, the recipe search feature of the Edamam API enables developers to create applications that cater to specific dietary preferences, cuisines, and health goals. Whether it's finding recipes based on ingredients on hand, dietary restrictions such as gluten-free or vegan options, or meal categories like breakfast or dinner, the API offers flexibility and customization options. By leveraging the Edamam API, developers can enhance their applications with rich nutritional content, recipe recommendations, and valuable health insights, making it a valuable tool for wellness, fitness, and cooking-related platforms.

- **LiveKit:**

LiveKit is a robust platform and set of APIs that streamline the development of real-time audio and video applications. Leveraging WebRTC technology, LiveKit offers developers the tools necessary to create interactive and scalable communication experiences, including live streaming, video conferencing, virtual events, and interactive broadcasting. One of its core strengths lies in providing seamless real-time communication capabilities, supporting features like one-on-one video calls, group video conferences, and large-scale live broadcasting while optimizing for low latency to ensure responsive interactions. This is particularly beneficial for applications that require immediate feedback and engagement, such as virtual classrooms, online gaming, collaborative tools, and live entertainment platforms.

LiveKit's architecture prioritizes scalability and reliability, offering load balancing, redundancy, and failover mechanisms to handle high traffic and ensure

uninterrupted communication flows. Developers can also customize the user interface, branding elements, and functionality of their applications using LiveKit's flexible APIs and SDKs, which are available for various platforms including JavaScript, iOS, and Android. Security is another key focus area, with LiveKit providing encryption for audio and video streams, access control features, and compliance with industry standards to safeguard communication data and maintain privacy. Overall, LiveKit empowers developers to build immersive, secure, and feature-rich real-time communication applications tailored to specific use cases and user requirements.

3.3 System Design

The system design for the Holistic Fitness Hub encompasses a comprehensive architecture that integrates frontend, backend, database, authentication, real-time communication, content management, scalability, security, and maintenance aspects. On the frontend, React.js is utilized to build interactive and responsive user interfaces, allowing users to access personalized dietitian services, one-on-one video conferences with certified gym trainers, interactive group sessions, educational resources, and community features. The backend, powered by Node.js and Express.js, manages API requests, business logic, and database interactions using MySQL as the relational database management system for storing user data, fitness metrics, nutritional information, and community content. Authentication and authorization are implemented using JSON Web Tokens (JWT) to ensure secure access control and user authentication for protected routes and functionalities.

Real-time communication features are integrated using WebRTC technology or similar platforms for seamless audio and video interactions, supporting virtual workshops, group workouts, and community sessions. A content management system (CMS) is deployed for managing educational resources, articles, videos, recipes, and user-generated content, enhancing user engagement and knowledge sharing within the community. Scalability is achieved through cloud services like Amazon Web Services (AWS) or Google Cloud Platform (GCP), enabling auto-scaling, efficient resource allocation, and high availability to handle varying traffic loads. Security measures such as HTTPS, SSL/TLS encryption, input validation, and data sanitization are implemented to protect user data, ensure privacy, and comply with data protection regulations. Monitoring tools, logging mechanisms, regular maintenance, and

updates are employed to monitor system health, track performance metrics, detect anomalies, and ensure long-term system stability, reliability, and data integrity. Overall, this system design aims to provide a seamless, secure, and feature-rich platform for personalized fitness guidance, interactive sessions, community engagement, and holistic wellness support.

3.4 Basic Modules

The basic modules of the Fitness Hub platform include:

1. **User/Trainer Management:**

   The User/Trainer Management module in the Holistic Fitness Hub platform is designed to provide users and certified gym trainers with a seamless and personalized experience throughout their fitness journey. It begins with user registration, where individuals can create accounts by providing essential information such as their name, email address, password, age, gender, fitness goals, dietary preferences, and contact details. The registration process is secured with validation mechanisms like email verification or SMS verification to ensure the authenticity of user accounts and enhance platform security. Once registered, users gain access to a range of features for managing their profiles, including updating personal information, uploading profile pictures, setting privacy preferences, managing notification settings, and customizing their user experience to align with their fitness needs and preferences.

   On the trainer side, certified gym trainers can register and create comprehensive profiles showcasing their credentials, specialization areas, experience, certifications, session rates, availability, and contact information. This allows users to browse through trainer profiles, evaluate their expertise, view ratings and reviews from other users, and make informed decisions when selecting trainers for personalized sessions. The platform facilitates communication between users and trainers, enabling users to ask questions, discuss fitness plans, schedule one-on-one video conferences or personalized workout sessions, receive form corrections, track progress, and receive tailored fitness guidance aligned with their goals and health requirements. The appointment scheduling feature allows users to book sessions with trainers based on availability, session types, and preferred timings, while trainers can manage their schedules, accept or decline appointment requests, send session reminders, and track session history for each user.

2. Nutrition Management:

Nutrition Management within the Fitness Hub platform is a comprehensive module designed to provide users with personalized nutritional guidance, meal planning tools, calorie tracking, dietary analysis, and support for achieving their health and fitness goals. The module integrates a range of features and functionalities to empower users in making informed dietary choices, maintaining a balanced diet, and optimizing their nutrition for overall wellness.

Users can access a wealth of nutritional information and resources within the platform, including databases of food items, ingredient lists, nutritional values, recipes, meal plans, and dietary guidelines. The module offers tools for users to track their daily food intake, monitor calorie consumption, analyze macronutrient distribution (protein, carbohydrates, fats), track micronutrient intake (vitamins, minerals), and manage dietary restrictions or preferences (e.g., vegan, gluten-free, low-carb).

The platform's nutrition management capabilities enable users to set personalized dietary goals, such as weight loss, muscle gain, improved energy levels, or specific health objectives. Users can receive tailored nutrition recommendations, meal plans, and recipe suggestions based on their goals, preferences, dietary needs, and activity levels. The module also supports collaboration with certified dietitians or nutritionists, allowing users to consult professionals for personalized advice, nutritional assessments, and guidance on achieving optimal health outcomes.

Additionally, the nutrition management module may include features for meal logging, food diary tracking, barcode scanning for food items, nutritional analysis of recipes, meal scheduling, grocery list generation, and meal prep tips. Users can explore educational content on nutrition topics, access articles, videos, and resources related to healthy eating habits, portion control, mindful eating, and nutritional strategies for fitness success.

Integration with external APIs or databases may enhance the module's capabilities by providing access to extensive nutrition databases, food composition data, ingredient analysis, allergen information, and real-time updates on food products. The module may also incorporate gamification elements, challenges, rewards, and progress tracking to motivate users and encourage adherence to healthy eating habits.

Overall, Nutrition Management within the Holistic Fitness Hub platform aims to empower users with the knowledge, tools, and support needed to make positive dietary

choices, improve nutritional habits, and achieve holistic wellness in conjunction with their fitness journey.

3. **Workout Program:**

The Workout Program module within the Fitness Hub platform is designed to provide users with a comprehensive and personalized fitness experience tailored to their individual goals, preferences, and fitness levels. This module begins with a thorough assessment of users' current fitness status, including factors such as body composition, strength, endurance, flexibility, and any existing health conditions or injuries. Through fitness assessments, questionnaires, and consultations with fitness professionals, users' specific needs and limitations are identified to create a customized workout program.

Once users' fitness goals are established, the platform assists in setting SMART (Specific, Measurable, Achievable, Relevant, Time-bound) goals that align with their aspirations, whether it's weight loss, muscle gain, improved cardiovascular fitness, or overall wellness. Based on these goals, the platform generates personalized workout plans that include a variety of exercises, such as strength training, cardiovascular exercises, flexibility workouts, functional movements, and core exercises. Each workout plan is designed with consideration for users' fitness levels, equipment availability, time constraints, and preferences.

The module offers an extensive exercise library with detailed instructions, videos, and demonstrations for each exercise. Users can choose exercises based on their target muscle groups, exercise type, intensity level, and equipment preferences. The platform also provides guidance on proper form, technique, breathing patterns, and safety precautions to ensure effective and injury-free workouts.

4. **Virtual Training:**

The Virtual Training module within the Fitness Hub platform is a dynamic and comprehensive system designed to bring personalized fitness experiences to users wherever they are. Leveraging cutting-edge technology and real-time communication tools, this module offers a range of interactive and immersive features to enhance users' workout routines and fitness journeys.

At the core of the Virtual Training module are live video conferences with certified trainers. These sessions provide users with the opportunity to engage in real-time workouts, receive immediate feedback on form and technique, and benefit from personalized coaching tailored to their fitness goals. Trainers can guide users through exercises, demonstrate proper techniques, offer motivation, and address any questions or concerns, creating an interactive and supportive virtual training environment.

In addition to live sessions, the platform offers interactive workout options such as pre-recorded workout videos, interactive fitness classes, and guided workout routines. Users can choose from a variety of workout styles, including HIIT, yoga, strength training, cardio, and more, allowing for a diverse and engaging fitness experience. These interactive workouts provide flexibility for users to exercise at their own pace and schedule while still receiving expert guidance and instruction.

For users seeking personalized attention, the Virtual Training module enables one-on-one coaching sessions with trainers. These sessions are tailored to individual needs, fitness levels, and objectives, allowing for customized workout plans, nutritional guidance, lifestyle recommendations, and ongoing support. Trainers can track users' progress, monitor performance metrics, and adjust training plans as needed to ensure optimal results and user satisfaction.

Virtual group workouts are another highlight of the module, offering users the opportunity to join live fitness classes, group training sessions, or interactive challenges with fellow members. These group workouts foster a sense of community, motivation, and accountability as users exercise together, share experiences, and support each other's fitness journeys, even from a distance.

The module also includes robust tools for workout tracking and progress monitoring. Users can log their workouts, track exercise performance, monitor fitness metrics, and visualize progress over time. Integration with fitness technology such as wearable devices and fitness apps enhances the virtual training experience by providing accurate performance feedback, encouraging consistency, and enabling users to optimize their training efforts based on real-time data.

Overall, the Virtual Training module empowers users with flexible, interactive, and personalized fitness solutions, bridging the gap between users and fitness experts to create engaging and effective workout experiences within the Fitness Hub platform.

5. Appointment Scheduling:

The Appointment Scheduling module in the Fitness Hub platform is designed to provide users with a seamless and convenient way to schedule appointments with certified trainers, nutritionists, and other wellness professionals. This module offers a user-friendly interface that allows users to easily view the availability of professionals, select preferred dates and times, and book appointments according to their schedules and preferences. The interface is designed to be intuitive and accessible across various devices, ensuring that users can schedule appointments anytime and from anywhere.

Certified professionals within the platform can set their availability, including working hours and appointment slots, which users can then view and choose from based on their needs. Users can select from a range of appointment types and services offered by professionals, such as one-on-one training sessions, nutritional consultations, virtual workouts, group classes, workshops, and specialized programs. They can also provide additional details about their goals, preferences, or specific areas of focus to help professionals prepare effectively for the appointment.

Upon booking an appointment, users receive instant confirmation along with appointment details such as the date, time, location (whether virtual or physical), and any instructions or preparations required. Automated reminders are sent to users prior to the scheduled appointment to ensure they are reminded of the session and can prepare accordingly. Users also have the flexibility to reschedule or cancel appointments as needed, with options to add notes or reasons for any changes.

For payment-related aspects, the platform optionally integrates with payment gateways, allowing users to make secure payments for appointment bookings, session fees, or consultation charges directly through the platform. Various payment methods are supported, including credit/debit cards, digital wallets, and other payment options, and users receive invoices or payment receipts for their records.

The Appointment Scheduling module also facilitates communication between users and professionals, enabling users to send messages, ask questions, provide additional information, or discuss appointment details before the scheduled session. This communication feature enhances the overall appointment experience, allowing for productive discussions, pre-session guidance, resource sharing, and addressing any concerns or queries.

Overall, the Appointment Scheduling module streamlines the process of booking and managing appointments, promoting efficient communication, flexibility, and convenience for users and professionals within the Fitness Hub platform.

3.5 Database Design

The database design for the Fitness Hub platform is meticulously crafted to support the platform's diverse functionalities and user interactions seamlessly. At the core of the design is the entity-relationship model, which defines key entities such as users, trainers, nutritionists, appointments, workout programs, nutrition plans, sessions, content, payments, and feedback, along with their relationships and attributes. User profiles encompass vital information like user IDs, names, contact details, fitness goals, health conditions, and progress tracking data. Similarly, profiles for certified trainers and nutritionists include professional details, availability, session rates, and client feedback. The database efficiently manages appointment scheduling with attributes such as appointment IDs, dates, times, and status tracking. Workout programs and nutrition plans are structured with program details, exercise/nutrition specifics, progression guidelines, and user progress tracking. Content management includes metadata for articles, videos, recipes, workshops, user-generated content, and analytics data for performance tracking. Payment integration ensures secure transactions, while feedback and ratings systems capture user experiences and satisfaction levels. Security measures, data integrity constraints, and performance optimization techniques are implemented to safeguard data, ensure accuracy, and enhance system responsiveness, providing a robust foundation for delivering a seamless fitness and wellness experience to users within the Fitness Hub platform.

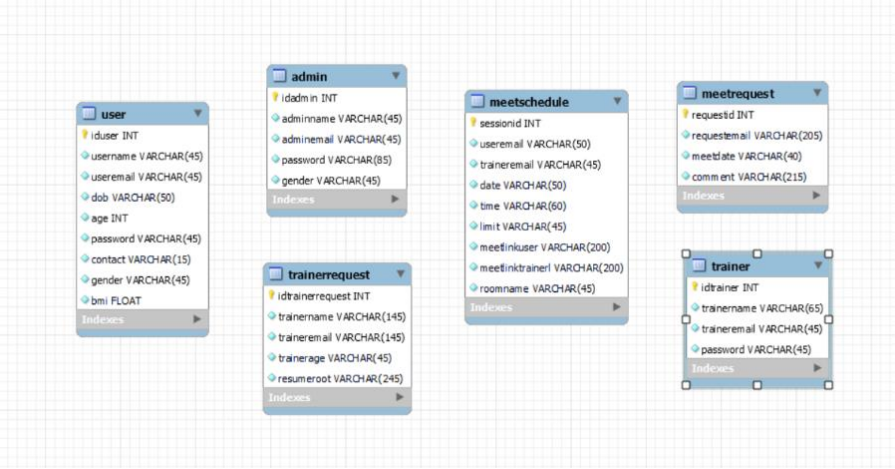

Fig 3.1: Database Design

3.6 Data Flow Diagram

The flow of data of a system or a process is represented by DFD. It also gives insight into the inputs and outputs of each entity and the process itself. DFD does not have control flow and no loops or decision rules are present. Specific operations depending on the type of data can be explained by a flowchart. It is a graphical tool, useful for communicating with users, managers and other personnel. it is useful for analyzing existing as well as proposed system.

DFD uses hierarchy to maintain transparency thus multilevel DFD's can be created. Levels of DFD are as follows:

- 0-level DFD: It represents the entire system as a single bubble and provides an overall picture of the system.
- 1-level DFD: It represents the main functions of the system and how they interact with each other.
- 2-level DFD: It represents the processes within each function of the system and how they interact with each other.

DFDs mainly use the following symbols: Circles/ellipses are used to represent processes. Processes represent activities in which data is manipulated by being stored or retrieved or transformed in some way. Start processes mark the beginning of a system's data flow, while end processes denote the termination or output of data flows. These processes are used to show how data enters and exits a system.

Rectangles are used to represent external entities, which are the sources of data that enter the system or the recipients of data that leave the system. These processes are the various functions, operations, or activities that occur within a system to transform input data into output data. rectangle entities in DFDs are used to represent processes.

Dataflow represents the movement of data from one part of the system to another. Dataflows are depicted as arrows and are labelled to indicate the type of data being transferred and the direction of the flow.

A Data Flow Diagram shortly termed as DFD has the purpose of clarifying system requirements and identifying major transformations that will become programs in system

design. It has the purpose of clarifying system requirements and identifying major transformations will become programs in system design. So it is the starting point of the design phase that functionally decomposes the requirements specifications down to the level of details. DFD is the most commonly used way of documenting the processing of the required system. A complete set of DFDs provide a compact top-down representation of a system, which makes it easier for users and analysts to understand the system as a whole. DFDs are a fundamental tool in systems analysis and design, especially in the field of software engineering and business process modelling.

DFD Level 0

Fig 3.2 DFD Level 0

DFD Level 1

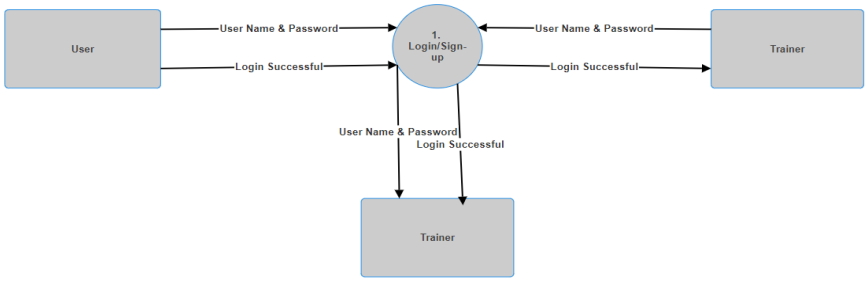

Fig 3.3 DFD Level 1

CHAPTER 4: SYSTEM TESTING

System testing for the Fitness Hub platform is conducted through a series of rigorous evaluations across multiple dimensions to ensure a robust and reliable system. Functional testing drills down into specific features such as user registration, appointment scheduling, content browsing, payment processing, and feedback submission, verifying their accuracy, reliability, and adherence to requirements. Integration testing focuses on validating the seamless interaction and data flow between different modules, databases, APIs, and external systems to ensure smooth communication and interoperability. Performance testing puts the platform under various load conditions to assess its responsiveness, scalability, and resource utilization, identifying potential bottlenecks and optimizing performance. Security testing encompasses vulnerability assessments, penetration testing, encryption validation, and compliance checks to safeguard user data, prevent unauthorized access, and meet industry standards. Usability testing evaluates the platform's user interface, navigation, accessibility, and overall user experience, gathering feedback to enhance user satisfaction and engagement. Compatibility testing ensures the platform functions seamlessly across different devices, browsers, and platforms, catering to diverse user preferences and environments. Regression testing verifies that new updates, enhancements, or fixes do not disrupt existing functionalities, maintaining system stability and reliability. User acceptance testing involves real users or stakeholders validating the platform against acceptance criteria, ensuring it meets business objectives and user expectations. Through these comprehensive testing processes, the Fitness Hub platform aims to deliver a high-quality, secure, and user-centric fitness and wellness experience for its users and professionals.

4.1 Testing Methods

1. **Function Testing:**

   Functional testing for the Fitness Hub platform involves verifying the functionalities and features specific to its fitness and wellness services. Here are some key aspects of functional testing tailored for the Fitness Hub:

   - User Registration/Login: Test the registration process to ensure users can create accounts with required information like name, email, and password. Verify that

users can log in successfully with valid credentials and that the authentication mechanism works as expected.

- Appointment Booking: Test the appointment booking feature to ensure users can schedule sessions with certified trainers, nutritionists, or wellness professionals. Verify that the booking process captures necessary details like session type, date, time, and user preferences accurately.
- Workout Program and Nutrition Plan Access: Validate that users can access personalized workout programs and nutrition plans based on their fitness goals, health conditions, and dietary preferences. Test the delivery of tailored recommendations and content alignment with user requirements.
- Interactive Group Sessions: Test the functionality for users to participate in interactive group sessions with other members and professionals. Verify that group sessions are scheduled, conducted, and recorded effectively, fostering community engagement and collaboration.
- User Profile Management: Test the functionality for users to manage their profiles, preferences, settings, and subscriptions. Verify that profile updates, notifications, and communications are accurate, timely, and personalized.

2. **Usability and User Experience Testing:**

   Usability and User Experience Testing for the Fitness Hub platform focuses on evaluating the user interface, navigation, accessibility, and overall user experience to ensure that users can interact with the platform effectively and enjoy a seamless fitness and wellness journey. Here are some key aspects of usability and user experience testing:

   - User Interface Evaluation: Assess the design elements, layout, color schemes, typography, and visual hierarchy of the user interface to ensure a pleasing and intuitive design. Test the consistency of design elements across different screens and sections of the platform for a cohesive user experience.
   - Navigation Testing: Evaluate the navigation flow, menu structure, breadcrumbs, and navigation elements (such as buttons, links, and menus) to ensure users can easily navigate through the platform.
   - Form and Input Testing: Validate form fields, input validation messages, error handling, and form submission processes to ensure a smooth user experience

during data input. Test autofill functionality, input masks, and validation rules for accuracy and user-friendliness.

- Performance and Loading Times: Assess the platform's performance, loading times, and responsiveness to user interactions to ensure a smooth and lag-free experience.

3. Performance Testing:

Performance testing for the Fitness Hub platform is essential to ensure its responsiveness, scalability, and reliability under various load conditions. Here are the key aspects and approaches to performance testing:

- Load Testing: Evaluate the platform's performance under expected user loads to ensure it can handle concurrent user interactions, data requests, and transactions without degradation in performance.
- Scalability Testing: Assess the platform's ability to scale horizontally or vertically to accommodate increasing user loads, data volumes, or system demands.
- Database Performance Testing: Evaluate database query performance, indexing strategies, data retrieval times, and transaction throughput to optimize database performance. Test database scalability, connection pooling, and data caching mechanisms to handle large data volumes and concurrent access.

4. Compatibility Testing:

Compatibility testing for the Fitness Hub platform is crucial to ensure that it functions seamlessly across different devices, browsers, operating systems, and screen sizes. Here are the key aspects and approaches to compatibility testing:

- Cross-Browser Testing: Test the platform's compatibility with major web browsers such as Google Chrome, Mozilla Firefox, Apple Safari, Microsoft Edge, and Opera. Verify rendering, layout, functionality, and performance across different browsers to ensure a consistent user experience.
- Browser Version Testing: Test compatibility with different versions of web browsers to identify any compatibility issues or discrepancies in rendering and

functionality. Ensure backward compatibility with older browser versions while optimizing for the latest browser releases.

5. **Regression Testing**:

   Regression testing for the Fitness Hub platform is essential to ensure that new updates, enhancements, or bug fixes do not adversely impact existing functionalities or introduce new issues.

6. **Accessibility Testing**:

   Accessibility testing for the Fitness Hub platform is crucial to ensure that users with disabilities can access and use the platform effectively, providing an inclusive experience for all users.

7. **User Acceptance Testing (UAT):**

   User Acceptance Testing (UAT) for the Fitness Hub platform involves validating its functionalities, usability, and overall fitness experience from the perspective of end users. Here are the key aspects and approaches to User Acceptance Testing:

   - UAT Test Plan and Test Cases: Develop a comprehensive UAT test plan outlining test objectives, scope, timelines, resources, roles, and responsibilities. Create UAT test cases covering core functionalities, user workflows, user roles, integrations, and critical scenarios identified during requirements analysis.
   - Usability Testing: Evaluate the platform's usability, user interface, navigation, and overall user experience to ensure it is intuitive, user-friendly, and aligned with user expectations. Gather feedback on layout, design elements, color schemes, typography, iconography, and visual hierarchy from UAT participants.

CHAPTER 5: IMPLEMENTATION

5.1 Introduction

The implementation of the Fitness Hub platform involves a detailed and systematic approach to bring the concept to life effectively. The process begins with thorough requirements gathering and analysis, where the project scope, objectives, and user needs are identified and documented. This phase sets the foundation for technology stack selection, where suitable technologies and frameworks are chosen based on scalability, security, and development expertise requirements. For instance, React.js may be selected for front-end development due to its component-based architecture and efficient rendering, while Node.js can be chosen for backend services for its non-blocking I/O and scalability.

Following technology stack selection, the architecture design phase focuses on designing a scalable and modular system architecture. This includes defining API specifications, data models, system integrations, and security protocols to ensure seamless communication and data exchange between components. Front-end development then begins, where responsive and user-friendly interfaces are developed using React.js, HTML, CSS, and JavaScript. This phase involves implementing interactive features, navigation elements, form validations, and multimedia content to engage users and enhance usability across devices and screen sizes.

Simultaneously, back-end development progresses to build robust back-end services and APIs using Node.js, Express.js, and other frameworks. This involves handling user authentication, data processing, business logic, and integrations, along with implementing database schemas, CRUD operations, data validation, and security measures to ensure data integrity, scalability, and performance. Integration of AI and ML components is also a key aspect, where algorithms are integrated for personalized fitness recommendations, nutrition planning, workout tracking, and wellness insights.

The implementation phase also includes the development of community and social features, such as forums, groups, messaging, and social networking capabilities to foster engagement, collaboration, and support among users. Comprehensive testing, including unit testing, integration testing, functional testing, regression testing, and user acceptance testing (UAT), is conducted to ensure software quality and reliability. Deployment to production or staging environments is followed by user training, support, and continuous improvement

through agile development practices, feedback gathering, feature enhancements, updates, and bug fixes.

Overall, the detailed implementation process of the Fitness Hub platform encompasses various stages, from requirements gathering to deployment and continuous improvement, ensuring a comprehensive and transformative fitness and wellness experience for users while adhering to best practices in software development and project management.

5.2 Implementation Procedures

The implementation procedures for the Fitness Hub platform are designed to ensure a systematic and efficient development process. Initially, the project kickoff involves aligning stakeholders and defining project goals and scope. This is followed by rigorous requirements gathering and analysis, where functional and non-functional requirements are identified and prioritized. Technology stack selection is crucial, with considerations for front-end technologies like React.js, back-end frameworks such as Node.js, database management systems like MySQL, and real-time communication features through WebRTC. The architecture design phase lays the groundwork for a scalable and modular system, including API specifications, data models, integrations, and security protocols.

Once the development iterations commence, agile methodologies are employed to break down the project into manageable tasks and sprints. Front-end development focuses on creating responsive and user-friendly interfaces, while back-end development implements robust services, APIs, and AI/ML components for personalized recommendations. Testing and quality assurance activities run concurrently, covering unit testing, integration testing, functional testing, and user acceptance testing (UAT). Deployment to staging environments allows for final validation and feedback collection before the platform is deployed to production environments using cloud services. User training and onboarding sessions are conducted to ensure smooth adoption, while continuous improvement and maintenance strategies are implemented to iterate on features, address feedback, and ensure long-term platform success.

CHAPTER 6: CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

The conclusion for the Fitness Hub platform project summarizes the key points, achievements, and future directions of the project. Here's a sample conclusion for the Fitness Hub platform:

In conclusion, the development and testing journey of the Fitness Hub platform have been a testament to our commitment to revolutionizing the fitness and wellness experience. Through meticulous planning, innovative design, and rigorous testing, we have created a comprehensive platform that offers personalized fitness guidance, interactive sessions, and a supportive community environment. The collaboration between our development team, fitness experts, and end users has been instrumental in shaping a platform that meets the diverse needs of our users.

During the development phase, we focused on incorporating user-centric design principles, accessibility standards, and performance optimizations to ensure a seamless and inclusive user experience. User Acceptance Testing (UAT) played a pivotal role in validating the platform's functionalities, usability, and overall fitness experience, leading to valuable feedback and iterative improvements.

Looking ahead, we are committed to continuous improvement and enhancement of the Fitness Hub platform. Our future roadmap includes expanding content offerings, integrating new technologies such as AI and data analytics for personalized recommendations, enhancing accessibility features, and strengthening community engagement initiatives.

We extend our gratitude to all stakeholders, partners, and users who have been part of this transformative journey. Together, we are shaping the future of fitness and wellness, making it accessible, enjoyable, and tailored to the unique needs of each individual. Join us as we continue to inspire healthier and happier lifestyles through the Fitness Hub platform.

6.2 Future Scope

The future scope of the Fitness Hub platform encompasses a multifaceted approach to enhancing user experience, expanding services, and embracing emerging technologies. One significant area of development is the integration of artificial intelligence (AI) and machine

learning (ML) algorithms to offer personalized fitness and wellness solutions. By leveraging AI-powered analytics, the platform can analyze user data, behavior patterns, and health metrics to provide tailored workout plans, nutrition recommendations, and wellness insights. This level of personalization enhances user engagement, motivation, and results, creating a more effective and rewarding fitness journey for each individual.

Additionally, the platform's future scope includes exploring immersive technologies such as virtual reality (VR) and augmented reality (AR) to revolutionize virtual training experiences. By incorporating VR/AR elements into interactive workouts, coaching sessions, and fitness challenges, users can immerse themselves in engaging and dynamic fitness environments. This not only adds a new dimension to their workouts but also enhances motivation, enjoyment, and adherence to fitness routines.

Furthermore, the future of the Fitness Hub platform involves expanding community features to foster a vibrant and supportive fitness community. This includes the development of forums, discussion boards, interest groups, and social networking capabilities within the platform. By facilitating peer support, knowledge sharing, and collaboration among members, the platform becomes a hub for shared experiences, expertise, and encouragement, creating a sense of belonging and motivation for users on their fitness journeys.

In terms of technological advancements, the platform will explore integration with health monitoring devices and wearables to track user activity, vital signs, and progress accurately. This data-driven approach enables users to monitor their fitness goals more effectively, receive actionable insights, and make informed decisions about their health and wellness.

Overall, the future scope of the Fitness Hub platform is centered on enhancing personalization, engagement, and community-building while leveraging cutting-edge technologies to deliver a holistic and transformative fitness and wellness experience for users worldwide.

CHAPTER 7: APPENDIX

7.1 Sample Code

Home Page:

```
import { Link } from "@nextui-org/link";
import { Snippet } from "@nextui-org/snippet";
import { Code } from "@nextui-org/code"
import { button as buttonStyles } from "@nextui-org/theme";
import { siteConfig } from "@/config/site";
import { title, subtitle } from "@/components/primitives";
import { Navbar } from "@/components/navbar";
import styles from "../styles/Home.module.scss";
import { GithubIcon } from "@/components/icons";
import './style.css'
// import videoplayback from '@/assets/videoplayback.mp4';
import { Divider } from "@nextui-org/react";
import AboutPage from "./about/page";
import TrainerSignup from "./trainersignup/page";

export default function Home() {
        const videosrc = "https://youtu.be/IwFPIfrwaII?feature=shared";
        return (
                <>

                <section className="flex flex-col items-center justify-center gap-0 py-0 md:py-0" style={{
                        width:"100%",
                        background:"tranperant"
                }}>
                {/* <section> */}
                        <div style={{
                                height:"240px",
                                width:"100%",
                                // backgroundColor:"blue",
                                //
backgroundImage:`url("https://i.pinimg.com/564x/fb/79/bb/fb79bb2743d553ddbcaad537f202fbd5.jpg")`,
                                // height: "100v",
                                backgroundRepeat: "no-repeat",
                                backgroundSize: "cover",
                        }}>
                        <video src={require('../assets/videoplayback.mp4')} autoPlay muted loop
                        // className={styles.video}
                        style={{
                                // position:"absolute",
                                // top:"0",
                                // width:"100%",
                                // objectFit:"cover",
```

```
                        // zIndex:"-1"
                    }}
                    />
                        {/* <Navbar /><Divider/>  */}
                    </div>
                    <div className=" max-w-lg text-center justify-center" >
                        <div style={{
                            width:"100%",
                            alignContent:"flex-start",
                            // backgroundColor:"green"
                            //
backgroundImage:`url("https://i.pinimg.com/564x/76/c7/6a/76c76a7a19d36104ad013fe959f5
f8ef.jpg")`,
                            // maxWidth:"100%"
                        }}>
                        <h1 className={title()}>One Step </h1>
                        <h1                                    className={title()}
style={{color:"white"}}>Towards A Healthy Lifestyles </h1>
                        <br /><br />
                        <h2     className={subtitle({     class:     "mt-4"     })}
style={{color:"white"}}>
                            Healthy body is the secret of a healthy lifestyle.
Start your day with fitness.
                        </h2>
                        </div>
                    </div>

                    <div className="" style={{
                        alignItems:"end"
                    }}>
                        <Link
                            isExternal
                            href="/login"
                            // href="http://localhost:3000/room"
                            className={buttonStyles({    color:    "primary",
radius: "full", variant: "shadow" })}
                            >
                            Login
                        </Link>  
                        <Link
                            isExternal
                            className={buttonStyles({       color:"primary",
variant: "shadow", radius: "full",  })}
                            href="/sign-up"
                            >

                            Sign Up
                        </Link>
                    </div>
                </section>
```

```
                        <br /><br /><br /><br />
                        <br /><br /><br /><br /><br /><br />
                        <br /><br /><br /><br /><br /><br />
                        <section className="flex flex-col items-center justify-center
gap-4 py-8 md:py-10">
                                <div className="inline-block max-w-lg text-center
justify-center" style={{

                                        width:"40%",
                                }}>
                                <AboutPage/>
                                </div>
                        </section>
                        <section className="items-center justify-center" >
                                <div className="text-center justify-center">
                                <h3 className={title()}>Become A  </h3>
                                <h2 className={title({ color: "violet" })}>TRAINER
With Us </h2>
                                <br /> <br /><br />
                                <TrainerSignup/>
                                </div>
                        </section>
                                        </>
                );
        }
```

User Dash

```
"use client"
import CardDataStats from "@/components/CardDataStats";
import WeightChart from "@/components/ChartThree";
import axios from "axios";
import { useRouter } from "next/navigation";
import { useEffect, useState } from "react";

export default function userDash(){
    const [username,setName] = useState('')
  const [message,setMessage] = useState('')
//   const [auth,setAuth] = useState(false)
  const [age,setAge] = useState('')
  const router = useRouter()
  useEffect(()=>{
    axios.get('http://localhost:9900/toke').then(res=>{
      if(res.data.Status === "Success"){
        // setAuth(true)
        setName(res.data.name)
        // setAge(res.data.age)
      } else {
        setMessage(res.data.Message)
      }
```

```
  })
 })
 useEffect(()=>{
  axios.get('http://localhost:9900/age').then(res=>{
   if(res.data.Status === "Success"){
    setAge(res.data.age)
    // console.log(res.data.age)
   } else {
    setMessage(res.data.Message)
   }
  })
 },[])
  return(
     <>
        <h1>this is the user dash board.</h1>
        <div className="grid grid-cols-1 gap-4 md:grid-cols-2 md:gap-6 xl:grid-cols-4
2xl:gap-7.5">

        <CardDataStats title="Age" name={username} age={age} levelUp>
        <svg
        className="fill-primary dark:fill-white"
        width="45"
        height="40"
        viewBox="0 0 22 22"
        fill="none"
        xmlns="http://www.w3.org/2000/svg"
        >
         <path d="M12.5 16a3.5 3.5 0 1 0 0-7 3.5 3.5 0 0 0 0 7m1.679-4.493-1.335
2.226a.75.75 0 0 1-1.174.144l-.774-.773a.5.5 0 0 1 .708-.708l.547.548 1.17-1.951a.5.5 0 1 1
.858.514M11 5a3 3 0 1 1-6 0 3 3 0 0 1 6 0M8 7a2 2 0 1 0 0-4 2 2 0 0 0 0 4"/>
         <path d="M8.256 14a4.5 4.5 0 0 1-.229-1.004H3c.001-.246.154-.986.832-
1.664C4.484 10.68 5.711 10 8 10q.39 0 .74.025c.226-.341.496-.65.804-.918Q8.844 9.002 8
9c-5 0-6 3-6 4s1 1 1 1z"/>

       </svg>
       {/* <h1>Welome to card 1</h1> */}
        </CardDataStats>
          </div>
          {/* <div className="mt-4 grid grid-cols-12 gap-4 md:mt-6 md:gap-6 2xl:mt-7.5
2xl:gap-7.5">
            <WeightChart/>
          </div> */}
     </>
  )
}
```

User Meal Plan:

```
"use client"
import Breadcrumb from '@/components/Breadcrumb/Breadcrumb'
```

```
import React from 'react'
import DefaultLayout from '../userdash/layout'
import { useEffect, useState } from "react"
import {Table, TableHeader, TableColumn, TableBody, TableRow, TableCell, Pagination}
from "@nextui-org/react";
import { useRouter } from 'next/navigation'
import axios from 'axios'

function MealPlan() {
   const router = useRouter();
   const[data,getData] = useState([])
   const meals: any[] = []
   const mealsLabel: any[] = []
   const[plan,getMeal] = useState([])
   const[label,getLabel] = useState([])
   // const[meals,getMeals] = useState([])
   useEffect(()=>{
      const fetchAllData = async ()=>{
         try{
           const res = await
axios.get("https://api.edamam.com/api/recipes/v2?type=public&q=pasta&beta=true&app_id=
9bdbc487&app_key=d99971d4bd667fb3106245fa977664dd&mealType=Lunch&calories=1
700")
            //
https://api.edamam.com/api/recipes/v2?type=public&q=main&app_id=9bdbc487&app_key=
d99971d4bd667fb3106245fa977664dd&health=vegan
             //
https://api.edamam.com/api/recipes/v2?type=public&q=fish&beta=true&app_id=9bdbc487&
app_key=d99971d4bd667fb3106245fa977664dd&mealType=Dinner&calories=1700
            // const res = await
axios.get("https://api.edamam.com/api/recipes/v2?type=public&q=main&app_id=9bdbc487
&app_key=d99971d4bd667fb3106245fa977664dd")
            // getData(re/s.data)
            getData(res.data)
            console.log(res)
            let i =0;
            // let meals:[]

            for(i = 0; i<=19;i++){
               // meals[i] = res.data.hits[i].recipe.image
               mealsLabel[i] =
{lable:res.data.hits[i].recipe.label,image:res.data.hits[i].recipe.image,calories:res.data.hits[i].r
ecipe.calories}
               // console.log(`data[${i}].recipe.label :`, res.data.hits[i].recipe.image)
            }
            // getMeal(meals)
            getLabel(mealsLabel)
            console.log("Meals image :",mealsLabel)
         }catch(e){
            console.log(e);
```

```
        }
      }
      fetchAllData()
  },[])
 return (
  <>
  <DefaultLayout>

     <Breadcrumb pageName='Meal Plan'/>
  <div>
  <Table aria-label="Example static collection table">
  <TableHeader>
     <TableColumn>Label</TableColumn>
     <TableColumn>Image</TableColumn>
     <TableColumn>Calories</TableColumn>
    </TableHeader>
    <TableBody>
    {label.map(data=>(
     <TableRow>
          <TableCell>{data.lable}</TableCell>
          <TableCell>
            <img src={data.image} alt="invalid" />
            </TableCell>
            <TableCell>{data.calories}</TableCell>
     </TableRow>
      ))}
    </TableBody>
  </Table> <br /><br />
  </div>
  </DefaultLayout>
  </>
 )
}

export default MealPlan
```

User Workout Regimens

```
import { useEffect, useState } from 'react';
import { workouts } from './Workouts/workouts';

const WorkoutFinder = () => {
  const [input, setInput] = useState('');
  const [results, setResults] = useState([]);
  const [arr, setArr] = useState([]);
  const handleInput = (e) => {
    const val = e.target.value.toLowerCase();
    setInput(val);
    if (val === '') {
      setResults([]);
```

```
    return;
   }
   const match = workouts.filter((exercise) =>
    exercise.name.toLowerCase().startsWith(val)
   );
   setResults(match);
  };
  const clearResults = () => {
   setArr([]);
   setResults([]);
  };
  useEffect(() => setInput(''), [arr]);
  return (
   <div style={{ margin: '0 auto' }}>
    <input type="text" value={input} onChange={handleInput} />
    <button onClick={clearResults}>clear</button>
    <div>
     <ul style={{ listStyle: 'none', padding: 0 }}>
      {results.map((item, i) => (
       <li key={i}>
        <button onClick={() => setArr([...arr, item.id])}>
         {item.name} ({item.id})
        </button>
       </li>
      ))}
     </ul>
    </div>
    <div>
     [
     {arr.map((item, i) => (
      <span key={i}>{item}, 0, </span>
     ))}
     ]
    </div>
   </div>
  );
};

export default WorkoutFinder;
```

Trainer Dash

```
"use client"
import CardDataStats from "@/components/CardDataStats";
import DefaultLayout from "@/components/trainerlayout/dashLayout";
import {Table, TableHeader, TableColumn, TableBody, TableRow, TableCell, Button, Link}
from "@nextui-org/react";
import axios from "axios";
import { useRouter } from "next/navigation";
import { useEffect, useState } from "react";
```

```
import { button as buttonStyles } from "@nextui-org/theme";
export default function userDash(){
  // const[auth, setAuth] = useState(false)
    const [data,setData] = useState([])
    useEffect(()=>{
      console.log("entered in setdata")
        const fetchAllData = async ()=>{
            try{
                const res = await axios.get("http://localhost:9900/showUserDetails")
                setData(res.data)
                // setAuth(true)
                console.log(data)
            }catch(e){
                console.log(e);
            }
        }
        fetchAllData()
    },[])
    const router = useRouter()
    return(
        <>
        <div>
{/* {
          auth ? */}
        <DefaultLayout>
            <h1>this is the user dash board.</h1>
            {/* <div className="grid grid-cols-1 gap-4 md:grid-cols-2 md:gap-6 xl:grid-cols-4
2xl:gap-7.5"> */}

            {/* <CardDataStats title="Name" name="Rohan Jacob" rate="21" levelUp>
            <svg
            className="fill-primary dark:fill-white"
            width="45"
            height="40"
            viewBox="0 0 22 22"
            fill="none"
            xmlns="http://www.w3.org/2000/svg"
            >
            <path d="M12.5 16a3.5 3.5 0 1 0 0-7 3.5 3.5 0 0 0 0 7m1.679-4.493-1.335 2.226a.75.75
0 0 1-1.174.144l-.774-.773a.5.5 0 0 1 .708-.708l.547.548 1.17-1.951a.5.5 0 1 1 .858.514M11
5a3 3 0 1 1-6 0 3 3 0 0 1 6 0M8 7a2 2 0 1 0 0-4 2 2 0 0 0 0 4"/>
            <path d="M8.256 14a4.5 4.5 0 0 1-.229-1.004H3c.001-.246.154-.986.832-
1.664C4.484 10.68 5.711 10 8 10q.39 0 .74.025c.226-.341.496-.65.804-.918Q8.844 9.002 8
9c-5 0-6 3-6 4s1 1 1 1z"/>
          </svg> */}
          {/* <h1>Welome to card 1</h1> */}
            {/* </CardDataStats> */}
            {/* <Table aria-label="Example static collection table">
       <TableHeader>
        <TableColumn>NAME</TableColumn>
```

```
      <TableColumn>E-Mail</TableColumn>
      <TableColumn>Date of Birth</TableColumn>
      <TableColumn>Age</TableColumn>
      <TableColumn>Contact</TableColumn>
      <TableColumn>Gender</TableColumn>
      <TableColumn>Button</TableColumn>
      </TableHeader>
      <TableBody>
      {data.map(data=>(
       <TableRow>
          <TableCell>{data.username}</TableCell>
          <TableCell>{data.useremail}</TableCell>
          <TableCell>{data.dob}</TableCell>
          <TableCell>{data.age}</TableCell>
          <TableCell>{data.contact}</TableCell>
          <TableCell>{data.gender}</TableCell>
          <TableCell>
          <Button color="danger">
           Delete User
           </Button>   
           <Button color="warning">
           Update User
           </Button>
           </TableCell>
           </TableRow>
       ))}
       </TableBody>
      </Table> */}
          {/* </div> */}
   </DefaultLayout>
   {/* : */}
   <div>
    <h1>Login now</h1>
    <Link
                                        // isExternal
                                        href="/login"
                                        // href="http://localhost:3000/room"
                                        className={buttonStyles({ color: "primary", radius:
"full", variant: "shadow" })}
                                        >
                                        Login
                                    </Link>  
   </div>
   {/* } */}
   </div>
      </>
   )
}
```

Trainer Resume Upload

```
"use client"
import { Navbar } from "@/components/navbar"
import "./style.css"
import { Divider } from "@nextui-org/react"
import { useRouter } from "next/navigation";
import axios from "axios";
import { useState } from "react";
export default function TrainerSignup(){
   const router = useRouter()
  const [name,setName] = useState("");
  const [email,setEmail] = useState("");
  const [age,setAge] = useState("");
  const [file,setFile] = useState("");

  const handleClick = async (e: any) =>{
    e.preventDefault()
    console.log("entered in handle click")
    const formData = new FormData();
    formData.append("name",name);
    formData.append("email",email)
    formData.append("age",age)
    formData.append("file",file)
    // console.log(formData)
    console.log(name,email,age,file)
    const result = await axios.post("http://localhost:9900/trainerupload",
    formData,
    {
       headers : {"Content-Type":"multipart/form-data"}
    });
    console.log(result)
    alert("File Uploaded")
    window.location.reload();
}
    return(
       <>
       {/* <Navbar/> <Divider/> */}
       <div className="login-box">

          <form>
             <label>Username</label>
          <div className="user-box">
             <input type="text" name="name" required
onChange={(e)=>setName(e.target.value)}/>
          </div>
             <label>Email-Id</label>
          <div className="user-box">
             <input type="text" name="email" required
onChange={(e)=>setEmail(e.target.value)}/>
```

```
        </div>
          <label>Age</label>
        <div className="user-box">
          <input type="number" name="age" required
onChange={(e)=>setAge(e.target.value)}/>
        </div>
          <label>Upload Resume</label>
        <div className="user-box">
          <input type="file" name="file" required accept="application/pdf"
onChange={(e)=>setFile(e.target.files[0])}/>
        </div><center>
          <button onClick={handleClick}>

        <a>
            Register
          <span></span>
        </a>
          </button>
        </center>
        </form>
      </div>
      </>
   )
}
```

Video Conference

```
"use client";
import "./style.css"
import '@livekit/components-styles';
import { ControlBar, RoomAudioRenderer, useTracks} from "@livekit/components-react";
import {
  LiveKitRoom,
  VideoConference,
  GridLayout,
  ParticipantTile,
} from '@livekit/components-react';
import { useEffect, useState } from 'react';
import { Track } from 'livekit-client';
import { useSearchParams } from "next/navigation";

export default function Page() {
  // TODO: get user input for room and name
  const params = useSearchParams();
  useEffect(()=>{
    const room = params.get("room");
    const name = params.get("name");
    if(room && name){
      setRoom(room);
      setName(name);
```

```
  }
 })
 const [room, setRoom] = useState<string>();
 const [name,setName] = useState<string>();
 const [token, setToken] = useState("");
 async function getToken(){
  if(!room || !name){
   alert("Please enter the room and username");
   return;
  }
  try {
   const resp = await fetch(
    `/api/get-participant-token?room=${room}&username=${name}`
   );
   const data = await resp.json();
   setToken(data.token);
  } catch (e) {
   console.error(e);
  }
 }

 if (token === "") {
  return (
  // <div>Getting token...</div>;
  <>
  <form
   onSubmit={(e)=>{
    e.preventDefault();
    getToken();
   }}
  className="login-box">
  <div className="user-box">
   <input type="text"
   placeholder='room'
   value={room}
   onChange={(e)=> setRoom(e.target.value)}/>
   </div>
   <div className="user-box">
   <input type="text"
   placeholder='Name'
   value={name}
   onChange={(e)=> setName(e.target.value)} />
   </div>
   <button type='submit'>Join</button>
   </form>
  </>
  )
 }

 return (
```

```
    <LiveKitRoom
      video={true}
      audio={true}
      token={token}
      serverUrl={process.env.NEXT_PUBLIC_LIVEKIT_URL}
      onDisconnected={()=>setToken("")}
      // Use the default LiveKit theme for nice styles.
      data-lk-theme="default"
      style={{ height: '100dvh' }}
      >
      {/* Your custom component with basic video conferencing functionality. */}
      {/* <MyVideoConference /> */}
      <VideoConference />
      {/* The RoomAudioRenderer takes care of room-wide audio for you. */}
      {/* <RoomAudioRenderer />  */}
      <RoomAudioRenderer/>
      {/* Controls for the user to start/stop audio, video, and screen
      share tracks and to leave the room. */}
      {/* <ControlBar/> */}

    </LiveKitRoom>
  );
}

function MyVideoConference() {
  // `useTracks` returns all camera and screen share tracks. If a user
  // joins without a published camera track, a placeholder track is returned.
  const tracks = useTracks(
    [
      { source: Track.Source.Camera, withPlaceholder: true },
      { source: Track.Source.ScreenShare, withPlaceholder: false },
    ],
    { onlySubscribed: false },
  );
  return (
    <GridLayout tracks={tracks} style={{ height: 'calc(100vh - var(--lk-control-bar-height))'
}}>
      {/* The GridLayout accepts zero or one child. The child is used
      as a template to render all passed in tracks. */}
      <ParticipantTile />
    </GridLayout>
  );
}
```

Admin Dash

```
"use client"
import axios from "axios"
import { useEffect, useState } from "react"
```

```
import {Table, TableHeader, TableColumn, TableBody, TableRow, TableCell, Button} from
"@nextui-org/react";
import { string } from "zod";
import { Toaster, toast } from 'sonner'
export default function AdminDash(){
   const [data,setData] = useState([])
   useEffect(()=>{
     console.log("entered in setdata")
      const fetchAllData = async ()=>{
         try{
            const res = await axios.get("http://localhost:9900/showUserDetails")
            setData(res.data)
            console.log(data)
         }catch(e){
            console.log(e);
         }
      }
      fetchAllData()
   },[])
   const handleDelete = async (id:any)=>{
      try{
         await axios.delete("http://localhost:9900/deleteuser/"+id)
         window.location.reload()
      } catch(err){
         console.log(err)
      }
   }
   return(
      <>
      <h1>This is admin dash</h1>
      <div>
         <Toaster />
         <Button onClick={() => toast.success('My first toast')}>
            Give me a toast
         </Button>
      </div>
      </>
   )
}
```

Admin Meeting Schedule

```
"use client"
import React, { useEffect, useState } from 'react'
import Breadcrumb from "@/components/Breadcrumb/Breadcrumb";
import {Input,Select, SelectItem,RadioGroup, Radio} from "@nextui-org/react";
import DefaultLayout from '../admindash/layout'
import axios from 'axios';
import moment from 'moment';
```

```
import { useRouter } from 'next/navigation';
// import { ToastContainer, toast } from 'react-toastify';
import { Toaster, toast } from 'sonner'
// import { toast } from 'react-hot-toast';
import TimePicker from 'react-time-picker';
const ScheduleMeeting = () => {
    // fetchUserEmail
    const [email,setEmail] = useState([])
    useEffect(()=>{
      console.log("entered in setdata")
        const fetchEmail = async ()=>{
            try{
                const res = await axios.get("http://localhost:9900/showUserEmail")
                setEmail(res.data)
                console.log(email)
            }catch(e){
                console.log(e);
            }
        }
        fetchEmail()
    },[])
    // fetchTrainerEmail
    const [temail,setTrainerEmail] = useState([])
    useEffect(()=>{
      console.log("entered in setdata")
        const fetchTrainerEmail = async ()=>{
            try{
                const res = await axios.get("http://localhost:9900/showTrainerEmail")
                setTrainerEmail(res.data)
                // console.log(email)
            }catch(e){
                console.log(e);
            }
        }
        fetchTrainerEmail()
    },[])
    // getDataInConsole
    const router = useRouter()
  const [formdata,setFormData] = useState({
    useremail:"",
    traineremail:"",
    date:"",
    time:"",
    timelimit:null,
    room:""
});
// const notify = () => {
//   // Calling toast method by passing string
//   // toast.success("Meeting Scheduled");
// };
```

```
const handleChange = (e:any)=>{
  setFormData(prev=>({...prev, [e.target.name]: e.target.value}));
}
const handleClick = async (e: any) =>{
  e.preventDefault()
  try{
    await axios.post("http://localhost:9900/schedulemeet", formdata)
    alert("meeting scheduled successfully")
    // toast.success("Meeting Scheduled")
    // notify();
    router.push("/AllMeeting")
  } catch(err){
    console.log(err)
  }
}
console.log(formdata);
const  currentDate = moment().format('YYYY-MM-DD');
  return (
    <DefaultLayout>
    <div className="mx-auto max-w-270">
       <Breadcrumb pageName="Schedule Meeting" />
       {/* <Toaster/> */}
       <div className="grid grid-cols-5 gap-8">
         <div className="col-span-5 xl:col-span-3">
           <div  className="rounded-sm  border  border-stroke  bg-white  shadow-default
dark:border-strokedark dark:bg-boxdark">
             <div className="border-b border-stroke px-7 py-4 dark:border-strokedark">
               <h3 className="font-medium text-black dark:text-white">
               </h3>
             </div>
             <div className="p-7">
               <form action="#">
                 <div className="mb-5.5 flex flex-col gap-5.5 sm:flex-row">
                   <div className="w-full sm:w-1/2">
                     <div className="relative">
                     <Select
                       label="Select User Email"
                       placeholder="Select email"
                       className="max-w-xs"
                       name='useremail'
                       onChange={handleChange}
                       >
                       {email.map(email => (
                          <SelectItem
                          key={email.useremail}
                          // key={email.iduser}
                          // value={email.useremail}
                          >
                          {email.useremail}
                          </SelectItem>
```

```
        ))}
        </Select>
       </div>
      </div>
      </div>
      <br />
      <div className="w-full sm:w-1/2">
      <Select
         label="Select Trainer Email"
         placeholder="Select email"
         className="max-w-xs"
         name='traineremail'
         onChange={handleChange}
         >
         {temail.map(temail => (
            <SelectItem key={temail.traineremail}>
            {temail.traineremail}
            </SelectItem>
         ))}
         </Select>
      </div>
    <br />
    <div className="mb-5.5">
      <div className="relative">
      <Input
            type="date"
            label="Select Date"
            className="max-w-xs"
            placeholder="Enter the e-mail"
            name="date"
            min={currentDate}
            onChange={handleChange}
         />
      </div>
    </div>
    <br />
    <div className="mb-5.5">
      <div className="relative">
      {/* <Input
            type="password"
            label="Old Password"
            className="max-w-xs"
            placeholder="Enter the old password"
            name="olpass"
         />  */}
         {/* <TimePicker label="Basic time picker" /> */}
         <Input type="time"
          label="Select Time"
          className="max-w-xs"
          placeholder="Enter time"
```

```
                    name="time"
                    onChange={handleChange} />
                  </div>
                </div>
                <br />
                <div className="mb-5.5">
                  <div className="relative">
                  <RadioGroup
                    label="Select time limit"
                    orientation="horizontal"
                    name='timelimit'
                    onChange={handleChange}
                  >
                    <Radio value="20 Min">20 Min</Radio>
                    <Radio value="30 Min">30 Min</Radio>
                    <Radio value="1hr">1 Hr</Radio>
                  </RadioGroup>
                  </div>
                </div>
                <br />
                <div className="mb-5.5">
                  <div className="relative">
                    <Input type="text" label="Room" name='room' className="max-w-xs"
placeholder="Enter Room Name" onChange={handleChange}/>
                  </div>
                </div><br /><br />
                <div className="flex  gap-4.5">
                  {/* <button
                    className="flex justify-center rounded border border-stroke px-6 py-2 font-
medium text-black hover:shadow-1 dark:border-strokedark dark:text-white"
                    type="submit"
                    >
                    Cancel
                  </button>     */}
                  <button
                    className="flex justify-center rounded bg-primary px-6 py-2 font-medium text-
gray hover:bg-opacity-90"
                    type="submit"
                    onClick={handleClick}
                    >
                    Schedule
                  </button>
                </div>
              </form>
            </div>
          </div>
        </div>
      </div>
    </div>
  </DefaultLayout>
```

```
  )
}

export default ScheduleMeeting
```

Server Side

```
"use server"
import express from 'express'
import mysql from "mysql"
import cors from "cors"
import cookieParser from "cookie-parser"
import jwt, { decode } from "jsonwebtoken"
import multer from 'multer'
// import { redirect } from 'next/navigation'
const app = express()

const db = mysql.createConnection({
    host:"localhost",
    user:"root",
    password:"1234",
    database:"fithub",
    // insecureAuth: true
})
if(!db){
    console.log("db connected")
}
else{
    console.log("connected")
}
app.get("/",(req,res)=>{
    res.json("hello this is the backend and your connected to the database")
})

app.use(cookieParser());
app.use(express.json());
app.use("/files",express.static("files"))
app.use(cors(
   {
    origin: ["http://localhost:3005"],
    methods: ["POST, GET","DELETE"],
    credentials: true
}
));
// username token
const getUserName = (req,res,next) =>{
    const token = req.cookies.username;

    if(!token){
        return res.json({Message: "we need token please. Login now"})
```

```
    } else {
        jwt.verify(token,"our-jsonwebtoken- secrete-key",(err,decode)=>{
            if(err){
                return res.json({Message: "Authentication error."})
            } else {
                req.name = decode.name;
                // req.age = decode.age;
                next();
            }
        })
    }
}
app.get('/toke',getUserName,(req,res)=>{
    return res.json({Status: "Success",name: req.name})
})
// age token
const getUserAge = (req,res,next) =>{
    const tokenAge = req.cookies.userAge;

    if(!tokenAge){
        return res.json({Message: "we need token please. Login now"})
    } else {
        jwt.verify(tokenAge,"our-jsonwebtokenAge- secrete-key",(err,decode)=>{
            if(err){

                return res.json({Message: "Authentication error."})
            } else {
                req.age = decode.age;
                next();
            }
        })
    }
}
app.get('/age',getUserAge,(req,res)=>{
    return res.json({Status: "Success",age: req.age})
})
// userEmail Token
const getUserEmail = (req,res,next) =>{
    const tokenEmail = req.cookies.userEmail;

    if(!tokenEmail){
        return res.json({Message: "we need token please. Login now"})
    } else {
        jwt.verify(tokenEmail,"our-jsonwebtokenEmail- secrete-key",(err,decode)=>{
            if(err){

                return res.json({Message: "Authentication error."})
            } else {
                req.email = decode.email;
                next();
```

```
        }
    })
  }
}
app.get('/userEmail',getUserEmail,(req,res)=>{
  return res.json({Status: "Success",userEmail: req.email})
})
// userlogin
app.post("/login",(req,res)=>{
  const q = "SELECT username,password,age,useremail FROM user where useremail=(?)"
  const val = req.body.email
  const pass = req.body.pass
  db.query(q,val,(err,data)=>{
    if(err){
      return res.json(err)
    }
    else{
      const dbpass = (data[0].password)
      const name = (data[0].username)
      const age = (data[0].age)
      const email = (data[0].useremail)
      const token = jwt.sign({name},"our-jsonwebtoken- secrete-key")
      const tokenAge = jwt.sign({age},"our-jsonwebtokenAge- secrete-key")
      const tokenEmail = jwt.sign({email},"our-jsonwebtokenEmail- secrete-key")
      // const tokenPass = jwt.sign({dbpass},"our-jsonwebtokenTPassword- secrete-key")
      res.cookie('username',token)
      res.cookie('userAge',tokenAge)
      res.cookie('userEmail',tokenEmail)
      // res.cookie('trainePassword',tokenPass)
      if(dbpass === pass){
        return res.json(name)
      }
      if(dbpass != pass){
        return res.json("invalid")
      }
    }
  })
})
// userdetails
app.get("/showUserDetails",(req,res)=>{
  // const q = "SELECT iduser, username, useremail, dob,age,contact,gender FROM user"
  const q = "SELECT * FROM user"
  db.query(q,(err,data)=>{
    if(err) return res.json(err)
    // console.log(data[2].iduser)
    return res.json(data)
  })
})
// trainerdetails
app.get("/showTrainerDetails",(req,res)=>{
```

```
    // const q = "SELECT iduser, username, useremail, dob,age,contact,gender FROM user"
    // console.log("trainer details")
    const q = "SELECT * FROM trainer"
    db.query(q,(err,data)=>{
        if(err) return res.json(err)
        // console.log(data)
        return res.json(data)
    })
})

// adminDetails
app.get("/showAdminDetails",(req,res)=>{
    // const q = "SELECT iduser, username, useremail, dob,age,contact,gender FROM user"
    // console.log("trainer details")
    const q = "SELECT * FROM admin"
    db.query(q,(err,data)=>{
        if(err) return res.json(err)
        // console.log(data)
        return res.json(data)
    })
})

// delete trainer details
app.delete("/deleteTrainer/:idtrainer",(req,res)=>{
    // console.log("entered in server delete")
    const idtrainer = req.params.idtrainer
    const q = "DELETE FROM trainer where idtrainer = (?)"
    // console.log("")
    db.query(q,idtrainer,(err,data)=>{
        if(err) return res.json(err);
        return res.json("Trainer has been deleted successfully");
    })
})
// user register
app.post("/register",(req,res)=>{
    const q ="INSERT INTO user
(`username`,`useremail`,`dob`,`age`,`password`,`contact`,`gender`,`bmi`) VALUES (?)"
    const values = [
        req.body.name,
        req.body.email,
        req.body.dob,
        req.body.age,
        req.body.password,
        req.body.contact,
        req.body.gender,
    ]
    const weigh = parseInt(req.body.weight)
    const heigh = parseInt(req.body.height)
    const h = heigh/100
    const bmi = weigh/(h*h)
```

```
    // console.log(weigh)
    // console.log(heigh)
    // console.log(h)
    // console.log(bmi)
    values[7] = bmi.toString()
    // console.log(values)
    db.query(q,[values],(err,data)=>{
        if(err) return res.json(err)
        return res.json("data has been added")
    })
})
// trainer Register
app.post("/trainerregister",(req,res)=>{
    const q ="INSERT INTO trainer (`trainername`,`traineremail`,`password`,`gender`) VALUES (?)"
    const values = [
        req.body.name,
        req.body.email,
        req.body.password,
        req.body.gender
    ]
    console.log(values)
    db.query(q,[values],(err,data)=>{
        if(err) return res.json(err)
        return res.json("data has been added")
    })
})

// admin Register
app.post("/adminRegister",(req,res)=>{
    const q ="INSERT INTO admin (`adminname`,`adminemail`,`password`,`gender`) VALUES (?)"
    const values = [
        req.body.name,
        req.body.email,
        req.body.password,
        req.body.gender
    ]
    console.log(values)
    db.query(q,[values],(err,data)=>{
        if(err) return res.json(err)
        return res.json("data has been added")
    })
})


// trainer login
app.post("/trainerlogin",(req,res)=>{
    // res.json("Now you are connected to the books route")
    // console.log("entered ")
```

```
    const q = "SELECT trainername,traineremail,password FROM trainer where traineremail=(?)"
    const val = req.body.email
    const pass = req.body.password
    console.log(pass)
    console.log(val)
    db.query(q,val,(err,data)=>{
        console.log("data:",data.length)
        if(data.length===0){
            return res.json("NoUser")
        }
        if(err){
            return res.json(err)
        }
        else{

                const dbpass = (data[0].password)
                const trname = (data[0].trainername)
                const tremail = (data[0].traineremail)
                // console.log("name is ",data)
                const trainname = jwt.sign({trname},"our-jsonwebtokenAd- secrete-key")
                const traineremail = jwt.sign({tremail},"our-jsonwebtokenTrainerEmail- secrete-key")
                // console.log("cookie is",trainname)
                // res.cookie('trainname',traineName)
                res.cookie('trainname',trainname)
                res.cookie('trainerEmail',traineremail)
                if(dbpass === pass){
                    return res.json("Success")
                }
                if(dbpass != pass){
                    return res.json("invalid")
                }
        }
    })
})
// trainerName token
const getTrainerName = (req,res,next) =>{
    const token = req.cookies.trainname;

    if(!token){
        return res.json({Message: "we need token please. Login now"})
    } else {
        jwt.verify(token,"our-jsonwebtokenAd- secrete-key",(err,decode)=>{
            if(err){
                return res.json({Message: "Authentication error."})
            } else {
                req.trname = decode.trname;
                // req.age = decode.age;
                // console.log(req.trname)
```

```
            next();
        }
    })
  }
}
app.get('/trainertoke',getTrainerName,(req,res)=>{
  return res.json({Status: "Success",trname: req.trname})
})

// show trainer-schedule
app.get("/showTrainerSchedule",(req,res)=>{
  const tokenTrainerEmail = req.cookies.trainerEmail;
  jwt.verify(tokenTrainerEmail,"our-jsonwebtokenTrainerEmail-secrete-
key",(err,decode)=>{
    if(err){

      return res.json({Message: "Authentication error."})
    } else {
      req.tremail = decode.tremail;
      // next();
    }
  })
  // const email = req.email
  // req.email = decode.email
  // console.log("email is",req.email)
  const email = req.tremail
  // console.log("email is",tokenEmail)
  const q = "SELECT * FROM meetschedule where traineremail=(?)"
  db.query(q,email,(err,data)=>{
    if(err) return res.json(err)
    // console.log(data)
    return res.json(data)
  })
})

// adminlogin
app.post("/adminlogin",(req,res)=>{
  // res.json("Now you are connected to the books route")
  // console.log("entered ")
  const q = "SELECT adminname,password FROM admin where adminemail=(?)"
  const val = req.body.adminemail
  const pass = req.body.password
  // console.log(pass)
  // console.log(val)
  db.query(q,val,(err,data)=>{
    if(err){
      return res.json(err)
    }
    else{
      const dbpass = (data[0].password)
```

```
            const adname = (data[0].adminname)
            const adminName = jwt.sign({adname},"our-jsonwebtokenAdmin- secrete-key")
            // const tokenAge = jwt.sign({age},"our-jsonwebtokenAge- secrete-key")
            const tokenEmail = jwt.sign({val},"our-jsonwebtokenAdminEmail- secrete-key")
            // const tokenPass = jwt.sign({dbpass},"our-jsonwebtokenTPassword- secrete-key")
            res.cookie('adminname',adminName)
            // res.cookie('userAge',tokenAge)
            res.cookie('adminEmail',tokenEmail)
            // console.log(tokenEmail)
            if(dbpass === pass){
                return res.json(adname)
            }
            if(dbpass != pass){
                return res.json("invalid")
            }
        }
    })
})

// adminName token
const getAdminName = (req,res,next) =>{
    const token = req.cookies.adminname;

    if(!token){
        return res.json({Message: "we need token please. Login now"})
    } else {
        jwt.verify(token,"our-jsonwebtokenAdmin- secrete-key",(err,decode)=>{
            if(err){
                return res.json({Message: "Authentication error."})
            } else {
                req.adname = decode.adname;
                // req.age = decode.age;
                next();
            }
        })
    }
}
app.get('/admintoke',getAdminName,(req,res)=>{
    return res.json({Status: "Success",adname: req.adname})
})

//delete userdetails
app.delete("/deleteuser/:iduser",(req,res)=>{
    // console.log("entered in server delete")
    const iduser = req.params.iduser
    const q = "DELETE FROM user where iduser = (?)"
    // console.log("")
    db.query(q,iduser,(err,data)=>{
        if(err) return res.json(err);
        return res.json("Book has been deleted successfully");
```

```
    })
})
// useremail
app.get("/showUserEmail",(req,res)=>{
    // const q = "SELECT iduser, username, useremail, dob,age,contact,gender FROM user"
    const q = "SELECT iduser,useremail FROM user"
    db.query(q,(err,data)=>{
        if(err) return res.json(err)
        // console.log(data)
        return res.json(data)
    })
})
// trainerEmail
app.get("/showTrainerEmail",(req,res)=>{
    // const q = "SELECT iduser, username, useremail, dob,age,contact,gender FROM user"
    const q = "SELECT idtrainer,traineremail FROM trainer"
    db.query(q,(err,data)=>{
        if(err) return res.json(err)
        // console.log(data)
        return res.json(data)
    })
})
// schedule storing
app.post("/schedulemeet",(req,res)=>{
    const q ="INSERT INTO meetschedule
(`useremail`,`traineremail`,`date`,`time`,`limit`,`meetlinkuser`,`meetlinktrainerl`,`roomname`
) VALUES (?)"
    const values = [
        req.body.useremail,
        req.body.traineremail,
        req.body.date,
        req.body.time,
        req.body.timelimit,
    ]
    const roomname = req.body.room
    values[5] = `http://localhost:3000/room?room=${roomname}&name=${values[0]}`
    values[6] = `http://localhost:3000/room?room=${roomname}&name=${values[1]}`
    values[7] = roomname
    // console.log(values[4])
    // console.log(values)
    db.query(q,[values],(err,data)=>{
        if(err) return res.json(err)
        console.log(err)
        console.log("data added")
        return res.json("data has been added")
    })
})
// userschedule
app.get("/showSchedule",(req,res)=>{
    const tokenEmail = req.cookies.userEmail;
```

```
    jwt.verify(tokenEmail,"our-jsonwebtokenEmail- secrete-key",(err,decode)=>{
        if(err){

            return res.json({Message: "Authentication error."})
        } else {
            req.email = decode.email;
            // next();
        }
    })
    // const email = req.email
    // req.email = decode.email
    // console.log("email is",req.email)
    const email = req.email
    // console.log("email is",tokenEmail)
    const q = "SELECT * FROM meetschedule where useremail=(?)"
    db.query(q,email,(err,data)=>{
        if(err) return res.json(err)
        // console.log(data)
        return res.json(data)
    })
})
// list all scheduled meeting
app.get("/showAllMeetings",(req,res)=>{
    // const q = "SELECT iduser, username, useremail, dob,age,contact,gender FROM user"
    const q = "SELECT * FROM meetschedule"
    db.query(q,(err,data)=>{
        if(err) return res.json(err)
        // console.log(data[2].iduser)
        return res.json(data)
    })
})

// show user request
app.get("/showUserRequest",(req,res)=>{
    // const q = "SELECT iduser, username, useremail, dob,age,contact,gender FROM user"
    const q = "SELECT * FROM meetrequest"
    db.query(q,(err,data)=>{
        if(err) return res.json(err)
        // console.log(data[2].iduser)
        return res.json(data)
    })
})

// delete user request
app.delete("/deleteRequest/:requestid",(req,res)=>{
    console.log("entered in rqst delete")
    const requestid = req.params.requestid
    const q = "DELETE FROM meetrequest where requestid = (?)"
    // console.log("")
    db.query(q,requestid,(err,data)=>{
```

```
        if(err) return res.json(err);
        return res.json("Trainer has been deleted successfully");
    })
})

// delete scheduled meeting
app.delete("/deleteSchedule/:sessionid",(req,res)=>{
    // console.log("entered in server delete")
    const sessionid = req.params.sessionid
    const q = "DELETE FROM meetschedule where sessionid = (?)"
    // console.log("")
    db.query(q,sessionid,(err,data)=>{
        if(err) return res.json(err);
        return res.json("Trainer has been deleted successfully");
    })
})
// request meet
app.post("/requestmeet",(req,res)=>{
    const q ="INSERT INTO meetrequest (`requestemail`,`meetdate`,`comment`) VALUES
(?)"
    const values = [
        req.body.email,
        req.body.meetdate,
        req.body.comment
    ]
    // console.log(values[4])
    console.log(values)
    db.query(q,[values],(err,data)=>{
        if(err) return res.json(err)
        console.log(err)
        console.log("data added")
        return res.json("data has been added")
    })
})

// upload trainer details with resume
const storage = multer.diskStorage({
    destination: function (req, file, cb) {
        cb(null, './files')
    },
    filename: function (req, file, cb) {
        const uniqueSuffix = Date.now()
        cb(null,
            uniqueSuffix+
            file.originalname)
        }
    })

    //   const PdfSchema = mongoose.model("PdfDetails")
    const upload = multer({ storage: storage })
```

```
    app.post("/traineruplоad",upload.single('file'),async(req,res)=>{
        const q = "INSERT INTO trainerrequest
(`trainername`,`traineremail`,`trainerage`,`resumeroot`) VALUES (?)"
        console.log("file uploaded")
        // const title = req.body.title
        // const name = req.body.name
        const fileName = req.file.filename
        const values =[
            req.body.name,
            req.body.email,
            req.body.age,
        ]
        const fileRoot = "http://localhost:9900/files/"+fileName
        values[3] = fileRoot
        console.log(fileRoot)
        console.log(values)
    // console.log(name)
    // res.send('upload successfully')
    try{
        // await PdfSchema.create({name:name,email:title,pdf: fileName})
        // res.send({status:"ok"});
        db.query(q,[values],(err,data)=>{
            if(err) return res.json(err)
            res.send({status:"ok"})
        })
    }
    catch(e){
        res.json({status:e})
    }
})

// display all trainer resume
app.get("/showTrainerResume",(req,res)=>{
    const q = "SELECT * FROM trainerrequest"
    db.query(q,(err,data)=>{
        if(err) return res.json(err)
        return res.json(data)
    })
})

// delete trainer resume request
app.delete("/deleteResumeTrainer/:idtrainer",(req,res)=>{
    // console.log("entered in server delete")
    const idtrainer = req.params.idtrainer
    const q = "DELETE FROM trainerrequest where idtrainerrequest = (?)"
    // console.log("")
    db.query(q,idtrainer,(err,data)=>{
        if(err) return res.json(err);
        return res.json("Trainer has been deleted successfully");
    })
```

```
})

app.listen(9900, ()=>{
    console.log("Connected to the server")
})
```

7.2 Screenshots

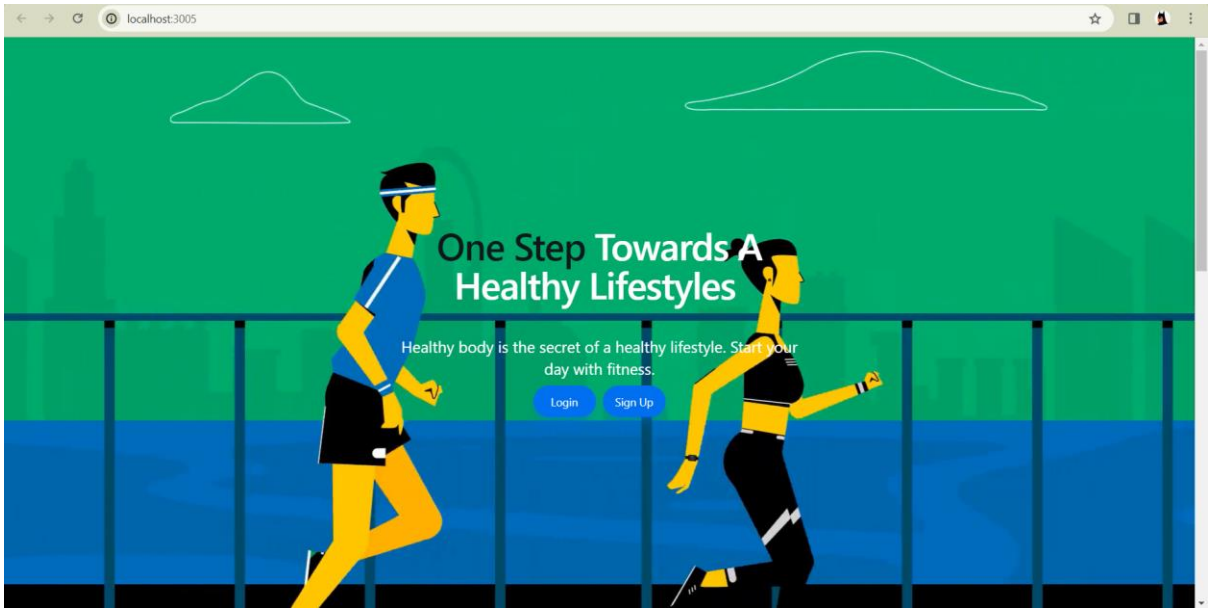

Fig 7.1: Home Page

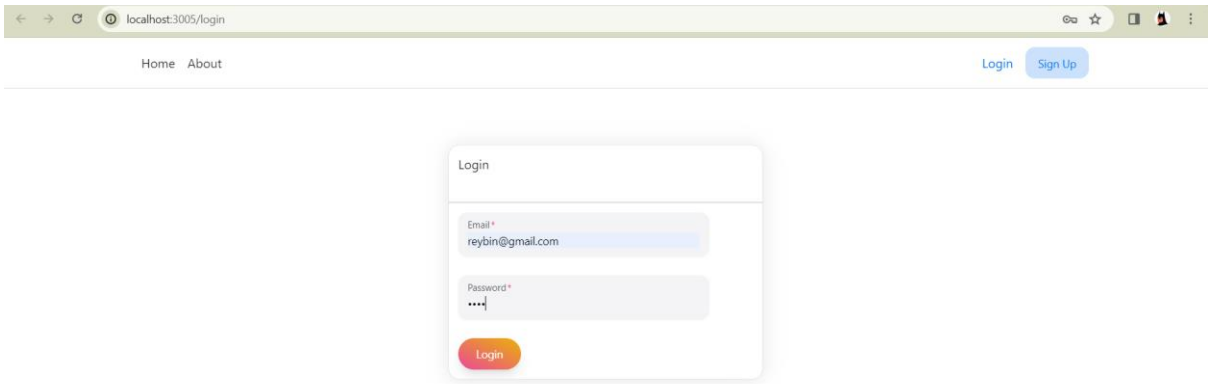

Fig 7.2: User Login

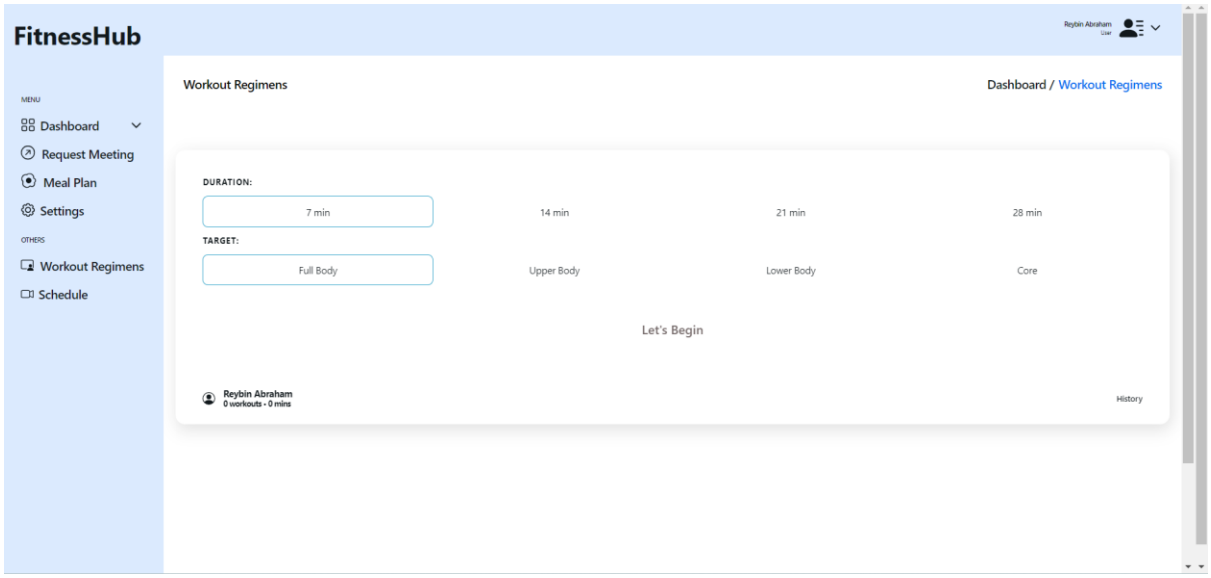

Fig 7.3: Workout Regimens

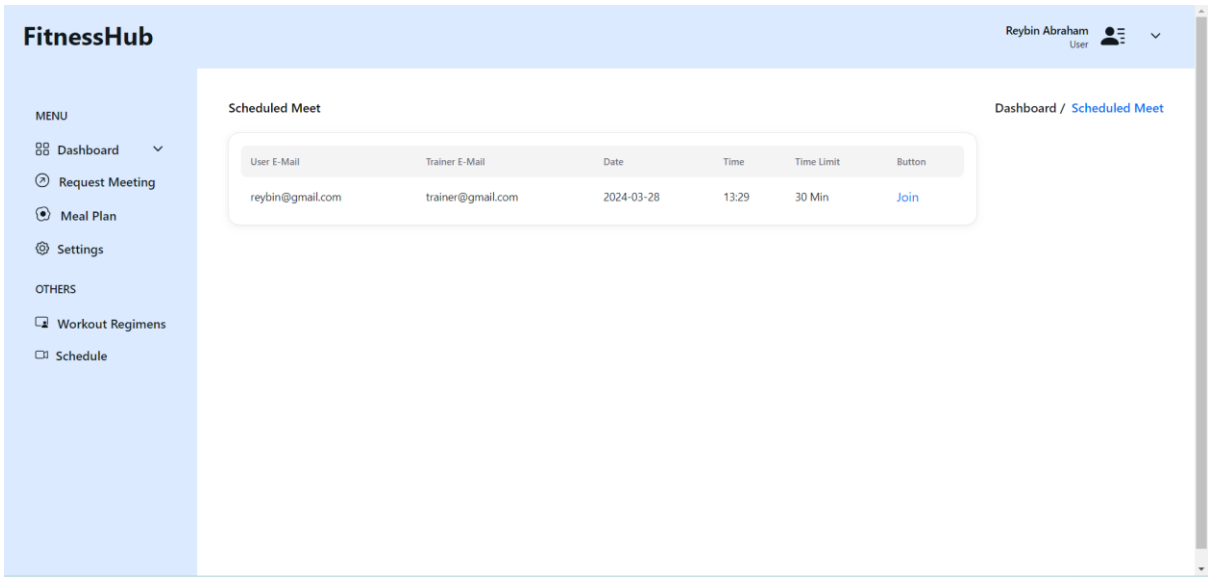

Fig 7.4: Scheduled Meeting(User)

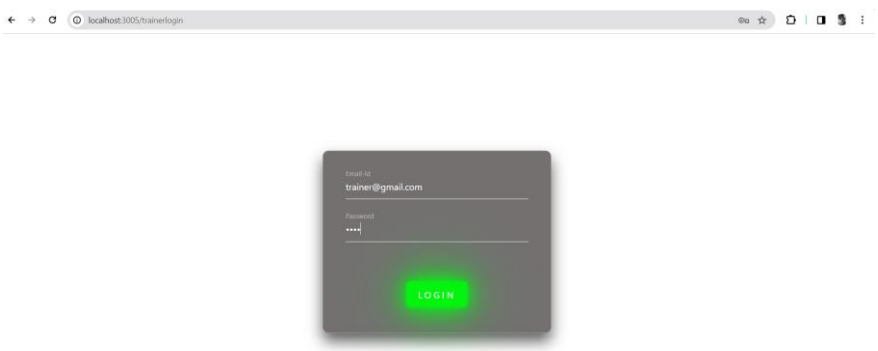

Fig 7.5: Trainer Login

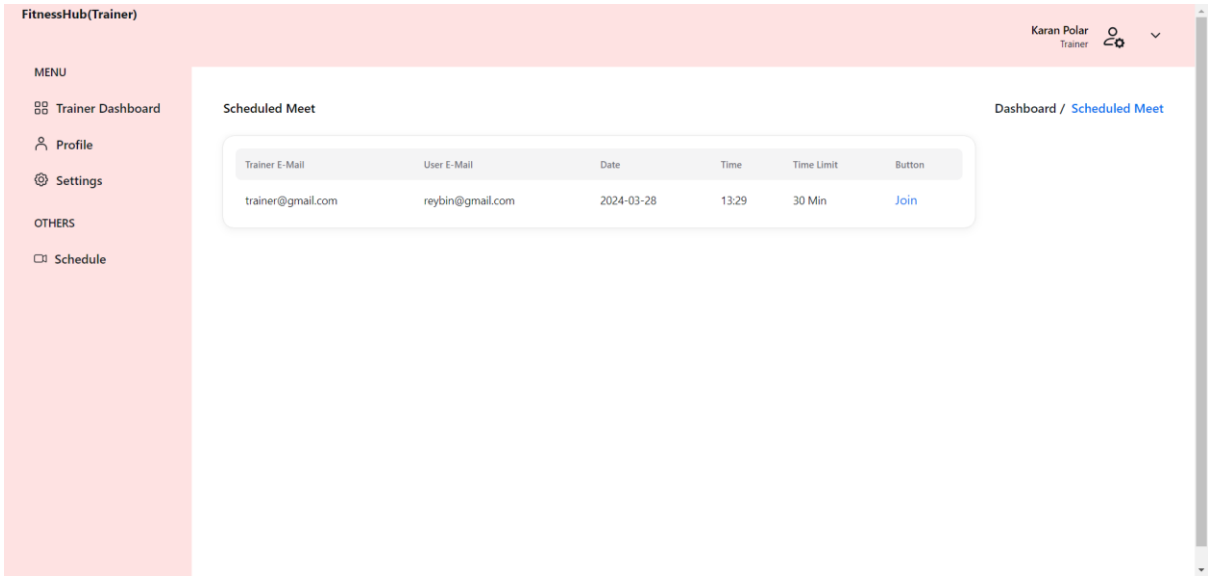

Fig 7.6: Scheduled Meeting(User)

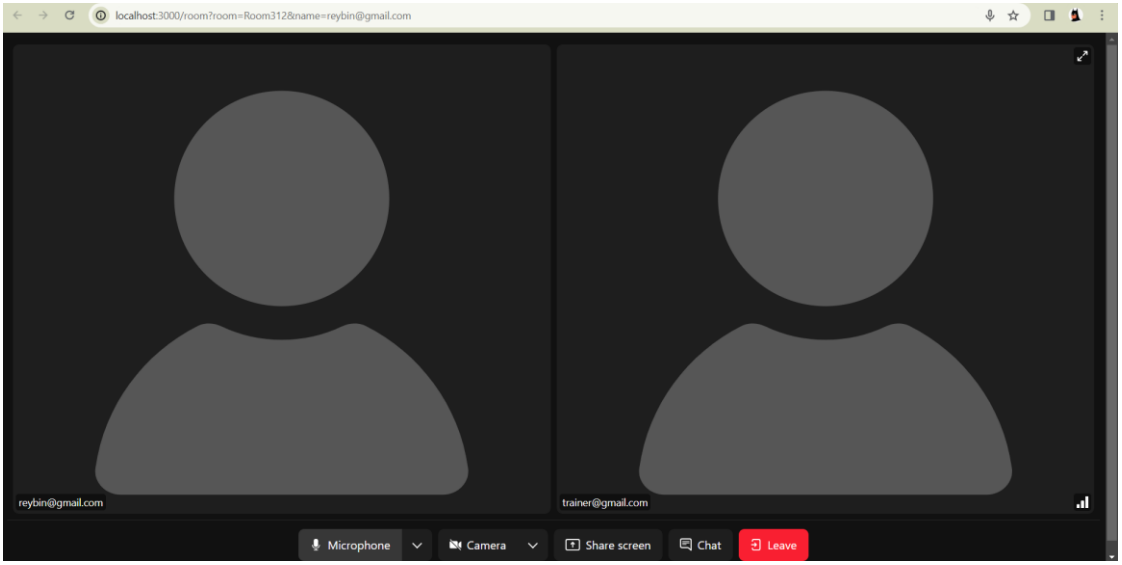

Fig 7.7 Video Conference

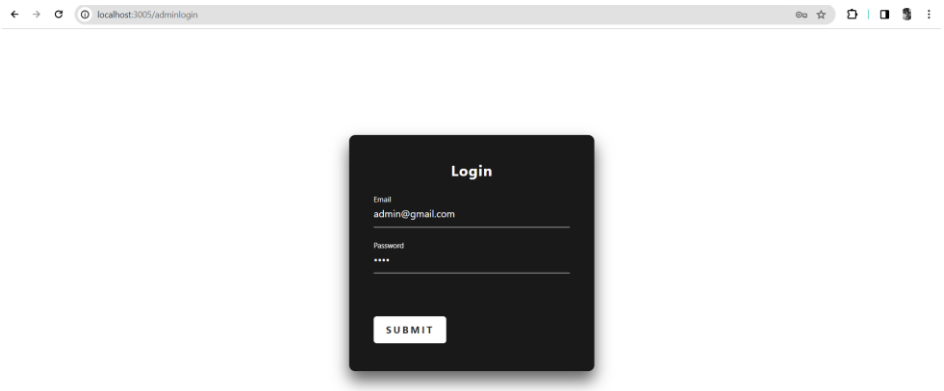

Fig 7.8: Admin Login

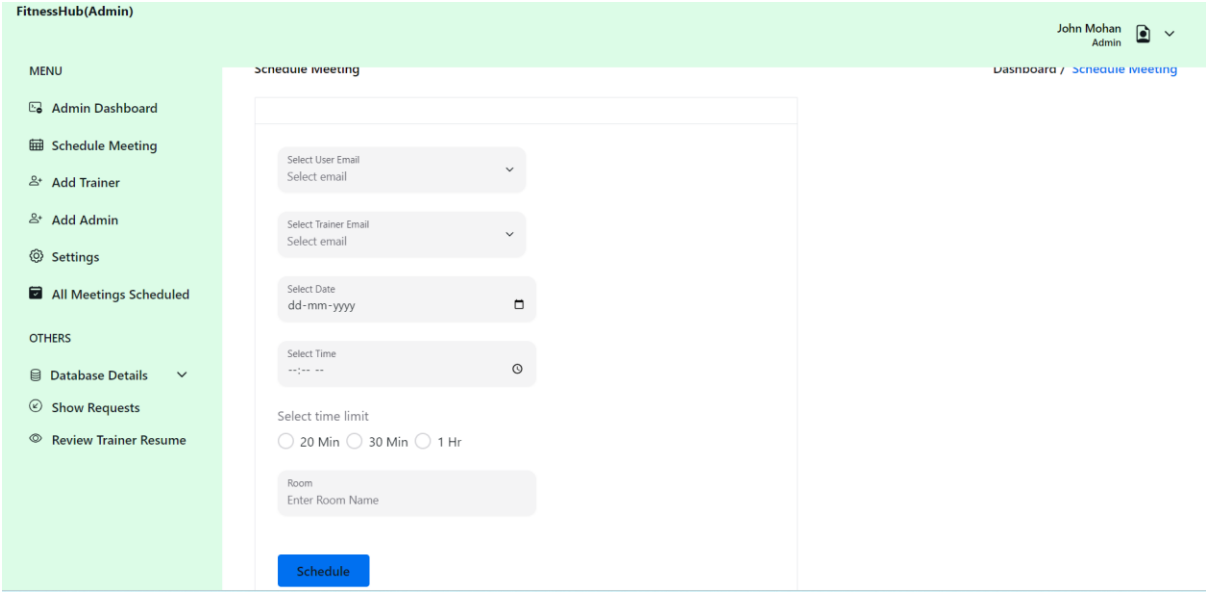

Fig 7.9: Schedule Meeting

CHAPTER 8: REFERENCES

8. REFERENCES

- IDEA Health & Fitness Association - Provides articles, conferences, and resources for fitness professionals and enthusiasts.
- WebMD Fitness & Exercise - Offers reliable information, workout plans, and health tips for individuals looking to improve their fitness.
- Next.js Documentation(https://nextjs.org/docs)
- Node js Documentations(https://nodejs.org/en/learn/getting-started/introduction-to-nodejs)
- WebRTC Official Website: The WebRTC website offers resources and documentation for implementing real-time communication features in web applications.
- LiveKit Documentations(https://docs.livekit.io/realtime/)